VISITS TO THE SCHOOL NURSE BY THE AT-RISK STUDENT VERSUS THE NON AT-RISK STUDENT

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by

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Visits To The School Nurse By The At-Risk Student

Versus The Non At-Risk Student

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An Abstract of a Thesis by
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The Problem: The purpose of this study was to compare students who were defined as at-risk and those who were not at-risk to determine if there was a significant difference in proportion of visits to the school nurse.

Procedure: For each initial health related daily visit to the school nurse by students in grades kindergarten through twelfth, a mark was placed in an "at-risk" column or a "non at -risk" column. The at-risk students were determined using three instruments: information obtained from parents at registration prior to the beginning of school; the school nurse's daily log; and a checklist containing 13 at-risk categories completed by classroom teachers, guidance counselors, and administrators. The study was done over a five month period consisting of 95 school days in a public school system with 1,474 students.

Findings: During the visits to the school nurse, significant differences were observed between the at-risk and non at-risk student. The at-risk students visited the school nurse for health related concerns more often than the non at-risk students.

Conclusions: The need for early identification and intervention of the at-risk student is apparent and necessary and can only be accomplished by a team approach of educators and school health personnel. Therefore, the importance of the school nurse in educational settings to aid in the identification and intervention of the at-risk student is evident and must be addressed by the public.

Recommendations: Recommendations for further research include: (1) replication of this study using a larger sample, (2) a longitudinal study on the effectiveness of early recognition and intervention and counseling of the at-risk student, (3) a study to determine what specific category or gender of at-risk student is seen most often by the school nurse, and (4) a study of each grade level or age group to determine if there is a difference in presenting symptomotology between the at-risk student and the non at-risk student when visiting the school nurse.

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IN MEMORY

In memory of Nancy Handley, my friend and colleague, who, until her untimely death, instilled into me confidence and courage to strive towards this goal.

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CHAPTER I

INTRODUCTION

It is generally acknowledged that a growing proportion of young people in our nation are "at risk" of not making a successful transition to productive lives. There are a number of categories of these "at-risk" students that can be found in national, state, and local reports on the topic (Jenkins, 1989).

In fact, to grow up in the United States today is, by definition, to be "at risk". Youth today are growing up in an environment that increasingly encourages risk-taking behavior. Such realities as the changing nature of the family unit, the advertising of addictive substances through marketing campaigns targeted specifically to youth, and long hours of passive television viewing that unrealistically depicts the rapid resolution of life's most difficult problems are a few examples of the factors that make up an environment in which health-enhancing decisions by youth are made more difficult (Seffrin, 1990).

Almost one-third of the nation's elementary and secondary students are educationally disadvantaged and represent a major challenge to the educational system. This proportion is rising as new waves of immigration, rising poverty among families with children, and high birth rates augment the disadvantaged population (Levin, 1987). Many thousands of young people leave school every year with skills that make them only marginally employable, which constitutes a major threat to our nation's productivity and competitiveness. One reason for

this is the large numbers of students with emotional, social, and physical health problems that interfere with their learning (The National Commission of the Role of the School and the Community in Improving Adolescent Health, 1989). Levin asserts that the failure to address the needs of these students will mean increased social and political turmoil, a less competitive economy, higher costs of other social services, and an educational sector characterized by rising costs and lower quality of student's graduating. This, in turn, will cause conflict in the higher educational system as colleges address the need for more restrictive admission criteria or the necessity to become more devoted to remedial academic work.

In a democracy, all students should be guaranteed the right to participate in, and benefit from, public school and community resources and programs. During at least the past decade, schools, striving for excellence, have increased standards for achievement and high school graduation. Concurrently, changes in family structure, social environment, and depressed economics have negatively affected various student populations. Consequently, these changes have interfered with some students acquiring the related behaviors necessary for school success and, thus, have contributed to the lower achievement level of certain students (Guidelines for Serving At-Risk Students, 1989).

When a student fails in the educational process, that student's chance for effective entry into the constructive, productive community diminishes dramatically. The cumulative effect of these losses and failures "eats at the fabric of our stable democracy and vital economy" (Students At Risk, 1989, p.1).

Therefore, prevention, identification, intervention, and remediation for students at-risk of educational failure becomes vitally important, not only to the student, but also to the well-being of the entire community (Students At Risk).

America's schools are being called upon to play a major role in altering the current trend of risk-taking behavior, followed by poor health, academic failure, and school dropout (Seffrin, 1990).

> Given their central place in communities, public schools could theoretically have chosen to involve themselves directly in the growing non-educational service needs of school-age children. However, neither the traditional service delivery network, nor the growing professionalism in the service community, encourages the schools' departure from educational concerns. Within the framework of the traditional network, schools have taken on certain non-educational functions closely allied to their central mission, and hired special staff to perform them. Guidance counselors, advising students on course selection, postsecondary education and jobs, are a natural extension of school functions. School lunch programs are provided to feed children unable to go home for lunch. Many schools also provide health services related to school activities through a school nurse program, sometimes supplemented with physician services. These three components of guidance, nutrition, and the school nurse often constitute the entirety of the formal social and health services provision of the public schools through at least the middle

of the twentieth century, and probably still do today in many cases (Morrill and Gerry, 1990, p.1).

Purpose of the Study

The purpose of this study was to determine the frequency of contact with the at-risk student versus the non at-risk student by the school nurse. This study will add to the body of knowledge regarding the need for the school nurse to serve the at-risk student in the educational setting.

It is conventional wisdom that healthy children learn better than sick children. Anecdotal evidence abounds, but scientific proof has been elusive (The Flinn Foundation, 1990).

According to Rohrbaugh and Rohrbaugh (1990), the school nurse is "on call" during the school day for children's problems that run the gamut from colds, stomachaches, headaches, minor cuts and bruises to major trauma and chronic health problems. Injuries and infectious diseases are not uncommon, but many problems have emotional or psychosocial components. Unfortunately, emotional or psychosocial components often eventuate into being the most complicated problems and the most difficult to recognize and manage. Studies done by Grey (1988) and Opie and Slater (1988) support the finding that stressful life events occurring in the lives of school children are associated with increased visits to the school nurse.

While working as a school nurse with students from kindergarten through twelfth grade in a public school system, the researcher daily observed

emotional and psychosomatic complaints among students visiting the school health services. Who are these children with these vague complaints? This has continued to be a nagging and perplexing puzzle to the researcher. Are these the students that Weitzman (1986) believes are our children at-risk, and, thus, major educational and social problems in the United States? Is their at-risk character highly correlated with future adult maladjustment, unemployment, and even imprisonment, and, if so, what implications would such a correlation have for school health programs and school nurses? Because of the need to begin to address these questions, the following research statement has been proposed.

Statement of Problem

Is there a significant difference in the proportion of visits to the school nurse in a public school system between students who are defined as at-risk and those who are not?

Definition of Terms

For the purposes of this study, the following definitions will be used:

Visits to the School Nurse: The entrance of a student into the office of the school nurse during school hours for the purpose of assessment of health problems involving physical, psychological, social, or behavioral entities.

Occurrence of a Visit to the School Nurse: A student visiting the school nurse's

office one or more times a day. Only the initial visit for the day for a health related concern was recorded.

School Nurse: An individual currently licensed to practice nursing under state law who delivers day to day nursing services and health counseling to children in school for the purpose of promoting and protecting the health of each student.

Public School System: A tax supported institution for the education of approximately 1500 children, in grades kindergarten through twelve, in a mid-western area of approximately 6000 persons.

At-Risk Student: Any student attending the public school in grades kindergarten through twelve who is identified as possessing, at the time of this study, one or more of the following attributes: (1) having a potential for not achieving graduation requirements, (2) being a pregnant or a teen-age parent, (3) using or abusing drugs, (4) living with drug-abusing parent or guardian, (5) having the potential of attempting suicide, (6) having been or being identified as a low academic achiever, (7) being abused or neglected, (8) being economically deprived, (9) having minority status, (10) possessing physical, mental, or learning disabilities, (11) living with a single parent or step-parent, (12) having a high rate of school absenteeism, (13) having been suspended or expelled 2 or more times. Permission for the use of these 13 categories in defining the at-risk student was obtained from R. Morley (personal communication, May 16, 1991), Iowa State

Department of Education. The means of determining the status of the at-risk student was ascertained through access to (1) student records; (2) information obtained from classroom teachers, guidance counselors, and/or administrators (Appendix A); and (3) pertinent, current information, obtained from parents (Appendix B) at the beginning of the school year.

Non At-Risk Student: Any student in grades kindergarten through twelve attending the public school who is not known to possess, at the time of the study, any of those attributes identified in an at-risk student. Iinformation will again be determined by (1) investigating individual student records; (2) obtaining current information from each classroom teacher of grades kindergarten through six as well as guidance counselors for junior high and high school, and school administrators; and (3) reviewing written information given by parents at the beginning of the school year.

Hypotheses

The following non-directional research hypothesis was investigated in this study:

There will be a significant difference between the proportion of visits to the school nurse by students who are at-risk and those who are not at-risk.

For statistical purposes the following null hypothesis was tested:

There will be no significant difference between the proportion of visits to the school nurse by students who are at-risk and those who are not at-risk.

Significance of Study

The design of a study by Rohrbaugh and Rohrbaugh (1990) was used for the basis of this study. The results of their research indicated that the students who visited the school nurse most frequently were at-risk in some respect. Grey (1988) revealed a direct relationship between high absenteeism and visits to the health room by 124 students experiencing stressful life events. Therefore, similar results may be expected in the current study when approximately 1500 students in grades kindergarten through twelve are examined for one school semester, or approximately a four month period. This study is intended to add to the existing body of nursing knowledge, with implications for the practice of school nursing.

In addition, although school nurses may be exceedingly "well-educated," a need will quite possibly be shown for better educated, specially prepared registered nurses for school nursing. For instance, if early intervention is indeed the answer to aiding the at-risk student, as Salmonsen (1988) suggests, then school nurses need to be knowledgeable in the intervention team approach, health counseling skills, referral procedures, mental health expertise, and health education skills. With these increased skills, the school nurse is better prepared to assist families in developing and improving their coping and communication skills within the family to decrease the vulnerability of the child to stressful events.

Thousands of young people leave school every year with skills that make them only marginally employable. According to existing research, such as Seffrin

(1990) and Students at Risk (1989), one reason for this is the large number of students with emotional, social, and physical health problems that interfere with their learning. They constitute a major threat to our nation's productivity and competitiveness. With adequate education, the school nurse can recognize the health risks to which the school-age child is exposed and be cognizant of any physical sign or symptom that could be the outcome of a number of causes, and take measures to alleviate them. The nation's future citizens and leaders need to be of interest and concern to us all!

More parental involvement, along with increased collaboration among educators, administrators and the school nurse are key issues. Rohrbaugh and Rohrbaugh (1990) believe nursing in a school setting involves working with children, as well as their parent, along with the child's "school family." When health or behavior problems arise and are identified, creating a bridge between these two families can be indispensable for promoting student health. Such a systematic approach to school nursing assumes that student health problems do not occur in isolation but are interwoven with the social environment. When a problem persists and is identified, on-going interaction within the family, between family and school, or within the network of helpers is often a factor. "In her flexible, semiautonomous role as front-line health consultant, the nurse is in an unique position to assess interactional dynamics, empower parents and teacher, and foster collaborative problem solving" (p.19).

According to Opie and Slater (1988), early identification and intervention

can greatly reduce the long-term effects of emotional disturbance. Children who are treated before their disturbance becomes severe are more likely to be well-adjusted teens and healthy, productive adults. Opie and Slater identify the school system as having the opportunity to provide primary prevention and the early intervention that will promote the mental health of children, and that failure to recognize and attend to the increasing needs of our children will contribute to a significant increase in the number of school dropouts, substance abusers, teenage pregnancies, and severely disturbed adolescents and adults. Weitzman (1986) supports the belief of early intervention and referral, including individual, group, and family therapy, with school nurses playing a vital role in the decision when intervention is warranted on a case-by-case basis. Allensworth and Kolbe (1987) further state that the school health service program promotes the health of students through prevention, case finding, early intervention and remediation of specific health problems.

As recently as 1985, the concept of school-based health clinics, providing comprehensive health services and health assessments, often to the pregnant teen, drug and alcohol abuser, or economically disadvantaged student, was virtually unknown in many parts of the country. Although initially slow to catch on in some areas, the idea has recently snowballed throughout the country. As these new resources for student health-care, especially for the at-risk student, become an issue in various communities, school nurses need to be well-informed and prepared (Baldwin, 1987).

School nurses, because of their position in the educational setting, have the opportunity not only to identify these students at risk but also to provide knowledgeable support and guidance. In addition, school nurses must participate in or conduct research that will enable the nursing profession to more effectively recognize and work with the at-risk student (Zeanah, 1983).

CHAPTER II

LITERATURE REVIEW

The literature review begins with a conceptual framework discussing the family systems theory approach when the school nurse is tending to the health needs of the at-risk student. The remainder of the literature review is organized using a deductive approach to provide the reader with generalized descriptions of the at-risk student and specific studies concerning individual entities, such as excessive school absences, the abused child, or the economically deprived student; a discussion of the role and importance of the school nurse in assisting the at-risk student; and relevant research consisting of studies previously completed. The study concludes with a review of literature in support of the present research and indicates the need for the study and for future research on this topic.

Conceptual Framework

This conceptual framework represents the beliefs and attitudes of the researcher and provides structure for this research. It illustrates the importance of the family when serving the health needs of school age children in an educational setting.

Rohrbaugh and Rohrbaugh (1990) believe family nursing in a school setting involves working with children and their parents and also with the child's

or between family and school is often a factor. "When health or behavior problems arise, creating a bridge between these two families can be indispensable for promoting student health" (p. 19). A family systems theory approach to school nursing assumes that student health problems do not occur in isolation but are interwoven within the family.

While school nurses have traditionally maintained a family-centered focus, there are many reasons for them to continue to focus on families. One of the primary reasons is that through family assessment (which would include such entities as the structure of the family, its functioning, its interactions, and also home environment, and the family's perception of the child) the school nurse can better know and understand the child. Therefore, two of the most important reasons for retaining a family-system approach to school nursing are (1) that such a focus enables the school nurse to better understand and assess the needs of the individual student and to more appropriately plan for health needs, and (2) because the family behaves as a unit, the problems and needs of any one member directly affects the other members. Consequently, a student's family must be regarded as a vital influence on the student's health and well-being (Wold, 1981).

Satir (1972), a well-known therapist and pioneer in studying family dynamics while working with clients, presents a theory of family function and points out that a family focus is essential to healthy growth and development of children. Satir's (1988) basic message is that a strong link exists between life in the family and the kind of adults that a family's children become. Since individuals make up society, Satir (1988) writes that the development of the

strongest and most congruent people possible is important and that everything starts in the family.

The family behaves as a unit, therefore, the problems and needs of the child directly affect and are affected by the other family members. A child's family must always be regarded as a vital influence on the child's health and well being. The child is blamed by the family for many misfortunes, Satir (1972) believes, but the child is not the family's real problem. Rather, the child's symptoms, whether physical, psychological, or behavioral, are a barometer of the family's function or dysfunction. As an example, the family often unconsciously encourages drug dependency behavior by using the addict as the family scapegoat. By emphasizing the inadequate coping of this family member, the family does not deal with the more basic and threatening problems within the family structure. Therefore, to solve the child's problem, the therapeutic focus needs to be on the entire family.

Satir (1972) has found that four aspects of family life keep emerging in the troubled families who come to her for therapy. They are:

1. the feelings and ideas one has about himself, which I call self worth;
2. the ways people work out to make meaning with one another, which I call communication;
3. the rules people use for how they should feel and act, which eventually develop into what I call the family system; and
4. the way people relate to other people and institutions outside the

family, which I call the link to society (p.3).

No matter what kind of problem first led a family into her office, Satir soon found that the prescription was the same. To relieve their family pain, some way had to be found to change the four key factors as stated above. In all of these troubled families she noticed that (1) self worth was low; (2) communication was indirect, vague, and not really honest; (3) rules were rigid, inhuman, nonnegotiable, and everlasting; and (4) the linking to society was fearful, placating, and blaming (Satir, 1972).

> The atmosphere in a troubled family is easy to feel. When I am in any of these kinds of troubled atmospheres, my body reacts violently. My stomach feels queasy; my back and shoulders soon ache, and so does my head. I used to wonder if the bodies of the people who lived in that family responded as mine did. Later, when I knew them better and they became free enough to tell me what life was like in their family, I learned that they did indeed feel the same way. After having this kind of experience over and over again, I began to understand why so many of the members of troubled families were beset with physical ills. Their bodies were simply reacting humanly to a very inhuman atmosphere (p.11).

Everybody has physical reactions to other individuals around him or her. Many people are not aware of it because of having been taught while growing up to turn off these feelings. With years of practice, individuals may turn these feelings off so successfully that there is a total unawareness of reacting until, hours later, a headache, an aching shoulder, or an upset stomach develops. Even

then the affected persons may not understand why they are experiencing physical symptoms (Satir, 1988).

> Children in a nurturing family feel good about themselves and consequently are loving, physically healthy, and competent. Conversely, children in troubled families often feel worthless, growing up as they must amid 'crooked' communication, punishment for their mistakes, and no experience in learning responsibility. Such children are highly at risk of developing destructive behavior toward themselves and/or others" (p. 27).

To understand the world is to study the family, Satir (1988) believes. Issues such as power, intimacy, autonomy, trust, and communication skills are vital parts underlying how we live in the world. "To change the world is to change the family" (p.2). The value of the family-system approach conceptual framework lies in its usefulness for assessing nursing needs and planning appropriate intervention for selected children and their family units (Wold, 1981).

Descriptions of the At-Risk Student

The at-risk student has been defined as:

> ...any identified student who is not meeting the goals of the educational program established by the school district, completing a high school education, or becoming a productive worker. These students may include, but are not limited to drop outs, potential drop outs, teenage parents, substance abuse users and abusers, low academic achievers,

> abused and homeless children, youth offenders, economically deprived, minorities, culturally isolated, those with sudden negative changes in performance due to environmental or physical trauma and those with language barriers, gender barriers and disabilities (Morley, 1988, p.1).

According to Morley (1988), serving at-risk students in the educational setting is a complex problem requiring multiple strategies. He suggests that "at - risk" is a label that would be better not used and replaced with "students with potential of being at risk" (p.1). "At risk students need to be identified as early as possible" (Donnelly, 1987, p. 1). There is some belief that the roots of at-risk behavior begin in the elementary grades with low achievement patterns, high absenteeism, and low self-esteem (Donnelly).

The Phi Delta Kappa study of students at risk began with the assumption that children are at risk if they are likely to fail either in school or in life. For example, if a student fails a course in school, is retained a grade, or drops out of school, that student is at risk. Likewise, if a student uses drugs has been physically or sexually abused, or has contemplated, or attempted suicide, that child is also at risk (Frymier and Gansneder, 1989). "'At-riskness' is a function of what bad things happen to a child, how severe they are, how often they happen, and what else happens in the child's immediate environment" (p.142). This study of students at risk was a collaborative research project involving hundreds of Kappans. Data collection was accomplished in uniform ways by chapter members and others in 276 schools between October and December, 1988. The records of" typical" students in each school were studied by teachers

and counselors who provided factual information to the researchers regarding 45 factors that previous research has suggested are related to being at risk. Students were identified to the research team only by numbers. Data on the 45 risk factors were collected on 22,018 students. Six-thousand, one hundred and seventy-three were fourth graders, 7,762 were in seventh grade, 7,417 were in tenth grade, and 666 were in other grades. The findings revealed between 25% and 35% of the 22,018 students in the study were seriously at risk. That is, between one-fourth and one-third of the students had six or more of the 45 factors that previous research linked to being at risk. Approximately 35% lived in non traditional home settings, while one out of seven had been retained a grade at least once, and the same ratio had failed at least one course the previous school year. One out of 15 students missed 21 or more days of school during one school year. One out of 8 was suspended from school at least once. Three out of 100 students openly admitted using drugs at least once at the pre-high school level. That figure rose to nine out of 100 at the high school level. Three out of 100 had attempted suicide, three out of 100 had been physically or sexually abused, and two out 100 were involved in a pregnancy.

In 1988, the United States Office of Education began the National Education Longitudinal Study. More than 24,000 eighth grade students in 1,000 public and private schools were surveyed. They will be followed every two years as long as the project has funding. Analysis of the 1988 data shows that 47% of these students had at least one risk factor in their lives. The study delineated six indicators that would put a child at risk: belonging to a single parent family,

having a family income of less than $15,000, being home alone more than three hours a day, having parents with no high school diploma, having a sibling who dropped out of school, and having limited English proficiency. Twenty percent of the students were affected by two or more of these risk factors. Of all eighth graders, 19% were not proficient in basic math skills, and 14% were unable to perform basic reading skills. The percentages were even higher for minority groups. Thirty percent of Hispanics, Blacks, and American Indians were unskilled in basic math, and 30% of those whose native language was not English were deficient in reading skills. Family income and education had a high correlation with academic achievement. Students in the top one-fourth of the socioeconomic class, for example, were eight times as likely as those in the bottom one-fourth to be proficient in math at the advanced level (Lewis, 1990).

Nationally, over 25% of potential high school graduates drop out before graduation. Higher standards in the public schools have adversely affected millions of minority and disadvantaged students who are at risk. "At risk students are students who are not experiencing success in school and are potential dropouts" (Donnelly, 1987, p. 1). They are usually low academic achievers who exhibit low self-esteem. Disproportionate numbers of them are males and minorities. Generally they are from low socioeconomic status families. Students who have both low income and minority status are at an even greater risk. These students may have parents with low educational backgrounds who may not have high educational expectations for their children (Donnelly). A publication entitled, "Iowa Youth at Risk 1991," stated that more than 20% of children under

age 18 live in families whose income is below the Federal poverty level and that the number of children living in poverty in Iowa increased 55% during the 1980's, the fourth largest increase among the 50 states (Iowa Coalition for Comprehensive School Health Education, 1991)

The District of Columbia Public Schools released in December, 1988, the results of the largest study of dropouts ever undertaken. The definition of dropout for this study was, "Any person who leaves school prior to graduation or completion of formal high school education or legal equivalent, who does not within 45 school days enter another public or private educational institution or school program" (Jenkins, 1989, p. 3). This study concluded that the city's twenty-six junior high schools were where most of these students lose all interest and give up class for good. "Many of the dropouts face limited job opportunities and, in turn, will be at-risk to our nation" (p. 7). Jenkins also maintains that regardless of race, students from poor families are three to four times as likely to drop out of school as other students.

Excessive school absence is being recognized increasingly as a major educational and social problem in the United States, according to Weitzman (1986). During the past two decades, school administrators have repeatedly listed excessive school absence as the number one problem in the daily administration of the nation's public schools. "Excessive absence is the earliest and most powerful predictor of the children who drop out of school" stated Weitzman (p. 24). Careful analysis of attendance patterns, even as early as the third grade, can identify the students most likely to drop out later

the Boston Middle School. Weitzman posed the hypothesis that excessive school absence would be a good epidemologic marker to identify children and families with unmet health needs. Previous research had indicated that unresolved health problems play a significant role in the problem of excessive absences. Seven of twenty-four middle schools in three of the city's nine school districts were enrolled in the study. They were all inner-city schools with over two-thirds of the student body living in poverty and more than three-quarters in single parent households. Students were defined as excessively absent if they met one of three criteria:

1. Absent on six or more consecutive days in one school quarter.
2. Absent at least ten days in a quarter.
3. Patterns of at least five absences on a given day of the week.

Using these three criteria, the study found that one-third of the students were classified as being excessively absent.

Six of the schools entered into an intervention study for four years and the seventh school entered into a case-control study. The six schools in the intervention study were divided into three groups of two schools each: two control groups and one intervention group. In all three groups, attendance data and grades were collected for all the students. In one control group, and in the intervention group, extensive interviewing was done. Using standardized questionnaires about adolescent health problems, individual interviews were conducted at school with 534 excessively absent students, and then, at home, with a parent of each child. According to 48% of the students and 53% of the parents,

health problems were the main reason for the absences. Health problems occurring most often were identified as upper respiratory infections, gastroenteritis, headaches, stomachaches, dysmenorrhea, and depression. It was found that children with chronic physical and mental health problems missed substantially more school than did their healthy peers. A total of 156 students then participated in an intervention program. Most of these students had chronic physical problems such as asthma, dysmenorrhea, and obesity. Many of these students also had emotional problems. All three groups of schools, the two control groups and the intervention group, improved, statistically, in school-wide attendance rates during the study. There was no explanation why the attendance rates did improve. Attendance rates improved for the individual students who received intervention, but not significantly when compared to the decreased absences for the control group. School nurses in the schools with intervention programs decided whether intervention was necessary on a case by case bases. Working with the project physicians, the nurse and physician took their own knowledge of the child into account and reviewed the parental interviews. The unmet health needs, defined broadly, included physical, mental, social, and combinations of these problems. The intervention took many forms but the main intervention was putting the families of the excessively absent students in touch with available community health centers while school based services were also employed (Weitzman, 1986).

As part of a study of the health of presumably normal high school students from a suburban Pittsburgh high school, the following characteristics of

student absenteeism were observed: (1) distribution of absence frequency, duration and cause by sex, age, and time; (2) patterns of absence frequency of individual students; (3) association of absence frequency and cause with other characteristics of students; and (4) signs and symptoms associated with absence causing physical illness (Rogers and Reese, 1965).

Two sources of information about absences were used in this study - health room [nurse's office] and official school records. The health room absence records were voluntary, confidential reports to the school nurse from the absentees on their return to school taken between January, 1957, through June, 1960. These records included information about absence cause, symptomatology, and treatment. Official school records were kept in the principal's office and listed the frequency, duration, and legality or illegality of the absence of each pupil. The number of absences was designated into categories: high frequency (11 absences and over), moderate frequency (4 to 10 absences), low frequency (1 to 3 absences), and no absences. In all years, females had greater absence frequency than males. Students in a given absence frequency category one year tended to remain in that category the consecutive years. When students were classified by both their absence and health room visit frequencies, there was a direct association at a level of statistical significance. When students were grouped according to both absence frequency (high, moderate, low, none) and four academic average categories (A, B, C, D), an inverse relationship at a statistically significant level was noted. The mean number of absence episodes for students who attended for a full year (1960-1961) was 4.6 while for students

who dropped out of school, the mean number of absence episodes was 15.9. Students in the lowest absence frequency groups (none and low) were contrasted with those in the highest frequency groups (moderate and high) with respect to working on weekends, working during the week, time spent in school activities, and number of school activities. In both sexes, at statistical significant levels, absence frequency was directly associated with hours of outside employment during the week and on weekends and indirectly associated with the number of hours spent in school activities weekly. Respiratory disorder was the most frequent absence category, accounting for about one fourth of all absence episodes. Gastrointestinal disorders accounted for approximately one eighth of all absences. More males than females reported absences not associated with illness. In this category were absences due to truancy, suspension, and juvenile court hearings. Emotional problem absences, although infrequent in both sexes, were more frequent in females. There was a tendency for absences of high frequency to be classified as not ill more often than those of lower frequency absentees. This study showed that most absences from high school were due to minor morbidity (Rogers and Reese, 1965). "It is suggested that high absence frequency in many instances indicates general social maladaptation and that surveillance of absence frequency by school health personnel may be an effective means for identifying 'problem children' " (p.26).

Medical and educational literature suggests that excessive school absence is a problem of enormous importance nationwide with significant health and social implications. Children who are frequently absent from school tend to

perform poorly in school and are likely to drop out before graduation from high school. Excessive school absence has significant implications in terms of maladaptive behavior, wasted opportunities, and future unemployment and welfare costs. Excessive school absence may signal such health problems as poor coping with or management of chronic illness, masked depression, teenage pregnancy, substance abuse, inappropriate responses to minor illnesses, or severe family dysfunction. School absence seems to be a readily available, easy to use marker of childhood dysfunction that lends itself to screening large numbers of children for unmet health needs. Attention to this area of child behavior as part of routine health care will frequently uncover previously unrecognized health problems in children and their families (Weitzman, Klerman, Lamb, Menary, & Alpert, 1982).

There are few studies of children in a nonclinical setting that examine the strength of associations between certain behaviors and abuse. Seven hundred and twelve junior high school students were surveyed using a self-administered questionnaire of personal experience with abuse, certain health behaviors, and self-esteem. Students responded to statements about feelings (eg. "I feel sad"), behaviors (eg. "I drink alcohol"), and experiences (eg. "I have been physically abused"). Some statements (eg. "I have attempted suicide") were asked as yes-no questions. The questions covered areas of school problems, substance use, emotional status, and social problems. The sample represented 83% of the students enrolled in the school with 50% of the students living with both parents, 24% living with a parent and a stepparent, and 23% living with a mother only.

One hundred thirty students (18.3%) reported a personal experience with abuse, 73 (10.3%) reported physical abuse only, 29 (4.1%) reported sexual abuse only, and 28 (3.9%) reported both physical and sexual abuses. These results are similar to the national estimates of recognized maltreatment. More females (12.6%) than males (4.0%) reported sexual abuse. The students who did report abuse were more likely than their peers to not live with both parents. While feeling sad and having difficulty in dealing with anger were not reported by more abused than non abused students, 75.9% of students who experienced both physical and sexual abuses reported that they had considered hurting themselves. Overall, 32% of students who reported having considered hurting themselves reported some form of physical and/or sexual abuse. Running away was more common among abused students. Self-esteem scores did not correlate significantly with the extent of physical or sexual abuse (Hibbard, Brack, Rauch, & Orr, 1988).

In slightly over three years, six young men, students or former students in a small school district in rural Ohio, committed suicide. Seibel and Murray (1988) analyzed the boys' school records paying particular attention to grades, behavioral reports, and teachers' anecdotal notes. They also interviewed the victims' friends, families, and teachers. The findings revealed commonalities, whereas, in each case, signs of trouble had surfaced long before the final event. A psychological storm had been gathering for years. The word "unhappy" was used early and often in teachers' descriptions of the six boys. Most of them did not do well in school. Several were identified as learning disabled. "Failure in school diminishes a child's self-esteem" (p. 50). Other frequent descriptors of

children who take their own lives were identified in this study as:

1. Anxiety disorders such as loneliness, shyness, withdrawal, tenseness, and extreme perfectionism.
2. Impulsiveness.
3. Hyperactivity.
4. Restlessness.
5. Broken homes.
6. Substance abusers. (Seibel and Murray)

It has been estimated that between 0.1% and 10% of all persons who attempt suicide go on to commit suicide. However, suicide attempts are not a reportable condition and no system of surveillance exists for suicide attempts. Therefore, these estimates must be considered as tentative estimates. Rosenberg, Smith, Davidson, and Conn (1987) examined death certificate data to identify significant patterns and trends in suicide in the United States. All suicide deaths of United States' residents for each year (1970-1980) were studied from the 21.2 million death records in the national mortality data files compiled by the National Center for Health Statistics, Department of Health and Human Services. Although the overall suicide rate did not change, important changes did occur. Suicide rates among older persons decreased and rates among younger persons increased markedly with the most dramatic increase being among young white men aged 15 to 24. Suicide rates for males in this age group increased 210.8% while suicide rates for females in this age group increased 65.4%. Death certificates contain little information that would help to explain the causes of

suicide. "Identifying particular risk factors for youth suicide in a community would allow prevention efforts to be directed toward the most vulnerable persons" (p. 436).

Nearly two thousand students at selected Iowa schools volunteered to participate in a written, confidential survey. This survey revealed that 30% of high school students responding to an Iowa Department of Education survey say they have contemplated suicide. Not only did three in 10 students say they had considered suicide in the year preceding the study, but 17% said they developed a specific plan to carry it out. Eleven percent said they had made a suicide attempt and 3% said they needed treatment by medical professionals to deal with sickness or injury related to the attempt (Belitso, 1991).

Suicide has become the second most common cause of death in the United States among people between the ages of 15 and 19 years. Suicide has no racial, ethnic, or socioeconomic barriers. There is no guaranteed community or family immunity from this epidemic. Because typical adolescent behaviors may be impulsive or extreme, it is often difficult to differentiate between behaviors that are considered normal and those that are warning signs of suicidal tendencies (Bakkala, 1990). A potentially suicidal adolescent may display either the classic symptoms of depression, such as eating disorders and sleeping disturbances, physical complaints, sad appearance, and lack of interest in friends and usual pleasurable activities; or an adolescent who demonstrates acting out behaviors, such as irritability, aggressiveness, destructiveness, and unpredictability; or an

Pediatrics notes that students in need of help may be found in many areas within the school setting, such as the school nurse's office. The student may frequently appear in the nurse's office with complaints of headaches or abdominal pain (AAP Urges Schools to Strengthen Role in Identifying Suicidal Students, 1991).

Suicide among young persons is a priority concern of the Centers for Disease Control. Youth suicide patterns are being studied to determine the risk factors that can define subpopulations of teens and young adults at highest risk. Some factors, such as mental illness, hopelessness, or a family history of suicide have already been associated with increased susceptibility. Additional research is needed to better characterize other possible risk factors, such as emotional stress, family structure, and drug and alcohol abuse (Rosenberg, et al., 1987).

Salmonsen (1988) conducted research concerning social maladaptation among children to the first grade classroom and the problem of teenage drug and alcohol abuse. It is known that social adaptation to first grade is a task that confronts all children in our society; therefore, the first grade was indicated as being appropriate for observation and effective intervention. The researcher's purpose was to identify a direct correlation between first grade social maladaptation and teenage drug use and abuse. According to Salmonsen, one of the greatest concerns of professionals working with adolescents involved in substance abuse is the delay of accomplishing the adolescent tasks necessary to reach emotional maturity. Salmonsen asked, "Could not prevention then start in the primary grades?" (p.10). "Who is in a better position than the school nurse to assess, evaluate, and plan for children's health where all the beginning symptoms

of this teenage tragedy might be initiated?" (p. 14). Salmonsen further states that the socially maladapted child presents his or her symptoms in a variety of ways. It may be in the form of excessive school absences, frequent visits to the school nurse with vague physical symptoms, or not getting along with peers or teachers. To establish data supporting her hypothesis that there is a correlation between socially maladapted first graders and teen drug and alcohol abuse, Salmonsen used several different health classes that were studying substance abuse. These were homogeneous classes of boys and girls of varying high school grade levels. Using simple random sampling, 215 students were selected from a high school student population of 1702. The design was a quasi-experimental. The fact that the population was teenagers ranging in age from fourteen to seventeen at different maturation levels posed an internal threat to validity. The instrument used in this research was an established and validly reliable questionnaire modified to include extra questions to obtain historical information. All the students involved chose to participate. The test was a self-test that identified teenage alcohol and drug abusers without jeopardizing confidentiality. The first 27 questions were directly and obviously related to drug and alcohol problems. Question 28 read as follows: "Was your first full-time experience with school an unhappy one?" (usually first grade). If the students answered yes to this question, they were instructed to proceed on to the next questions. Questions number 29-32 further explored the first-grade experience. Out of 215 respondents, 63 had positive responses to question 28. Of the 63 respondents who answered yes to question 28, all had four or more affirmative answers to questions 1-27 that were

an indicator of early symptoms of chemical dependency. The significant correlation between the data and the researcher's hypothesis was that all the students who self-reported that they were abusing drugs also self-reported that their first full-time school experience was an unhappy one. According to the author, this research did not indicate that social maladaptation in first grade predisposes one to drug use or abuse, but it did indicate that without some kind of intervention, teenage drug use or abuse may occur.

The purpose of a study done by Palmore and Shannon (1988) was to identify common risk factors found in a selected group of pregnant adolescents. Demographic data, patterns of school related behaviors, family relationships, family violence patterns, relationships with the fathers of the unborn infants, and drug use were studied. An open-ended questionnaire was used as a guide to the interviewer. The sample used in this study consisted of 57 students participating in a voluntary alternative educational program for pregnant students. These students were interviewed by a school nurse who worked regularly with the students in this program. Having previously developed a trusting relationship, the interviewer was nonthreatening. Students were allowed to talk freely about their concerns before the interview was guided into some of the more sensitive areas, such as drug use and family violence. Students supplied voluntary informed consent, and confidentiality was assured. The study was conducted in a suburb close to a large metropolitan area with students ranging in age from 14 to 18 years. Forty percent of the students in the sample had repeated at least one grade. Questions about the relationships between the pregnant adolescent and her

biologic mother indicated that mothers were usually present in the home (91%), and over half of the students perceived a good relationship with their mothers. Sixty-one percent of the students reported that their mothers had also been pregnant during adolescence. Biologic fathers were less frequently present in the home (37%), and only 21% perceived that they had a good relationship with their fathers. Twenty-six percent of the students were victims of physical abuse and 21% had been sexually abused. It was discovered that while most students were not using drugs during the pregnancy, 40% had been using drugs, mainly alcohol, prior to the pregnancy. Most of the pregnant students (77%) had known and dated the father of their child for over a year. Almost half of these fathers (49%) were also teens, 60% of the fathers were reported substance abusers, and 40% of them were school dropouts. Thus, the findings of this study showed that in this sample, many of the pregnant adolescent students had poor school achievements, troubled family relationships, histories of family violence, and exposure to drug abuse.

Pregnancy in adolescent students is one of the major health problems in the United States today (Palmore and Shannon, 1988). Success appears to play a major role in determining the age at which a girl engages in sexual activity. Girls scoring higher on intelligence tests, academic motivational scales, and those doing well in school are less likely to be sexually active. Contrasted with that fact, risk taking and problem behaviors such as smoking, school behavior requiring disciplinary actions, and other rebellious activities are highly correlated

high school sophomores in 1980 and 1982 revealed that proportionally more of the respondents who ranked high on a scale of other problem behaviors, and fewer of those who ranked high on a scale of educational expectations, said they were willing to consider having a child out of marriage (Davis, 1989).

Despite the scarcity of research, clinicians and researchers are now recognizing and beginning to understand the scope and magnitude of the devastating effects that growing up in an alcoholic family can have on children. An estimated one out of every eight children is growing up in a home with alcoholic parents. Children of alcoholics suffer from a family situation that hinders rather than promotes their growth as healthy functioning individuals. These children learn that they cannot trust their parents to provide the security that they need. Therefore, they assume that they cannot trust their teachers, their nurses, or other adults. Unfortunately, when these children are confronted by the realities of life outside the family, they are vulnerable to a number of psychological health problems. Children of alcoholics learn rules that help them to cope with the family situation but that leave them poorly prepared for stresses of life outside the family. Problems often come to these children later in life when they experience a failure or a defeat and, knowing no other means of coping, turn to alcohol themselves. More has been learned every year about the effect of alcohol on the developing fetus and the infant. Children with fetal alcohol syndrome continue to show difficulty throughout childhood. Exposure to alcohol in utero may have subtle effects on the central nervous system that may not be noticed immediately but may include learning and behavioral disabilities

of the child. A number of observational reports proposed that children of alcoholic fathers as well as of alcoholic mothers show learning difficulties in school. Boys with alcoholic fathers have frequently been found to have significantly lower academic achievement and are more likely to be placed in special classes. Many clinicians have argued that the children of alcoholics are more at risk for being abuse victims than children of nonalcoholics (Rowe, 1989).

Morehouse and Scola (1986) estimates that there are 28 million children in the United States who are affected by parental alcoholism. Of those, 7 million are under the age of 18. In any classroom of 25 students, four to six are children of alcoholics. Depending upon the severity of parental alcoholism, children of alcoholics suffer a wider range of physical, psychological, and emotional characteristics which impact on all aspects of their educational experience, such as attendance, classroom behavior, academic performance, peer relationships, involvement in extracurricular activities, and interaction with those in authority (Morehouse and Scola). These children of chemically dependent parents attend school less often and are more often late for school. This decreased exposure to academic material and limited help from their parents with homework may impair their ability to succeed in school (Oliver-Diaz, 1989). Problems that children of alcoholics face at a higher than average rate include school difficulties, hyperactivity, difficulty in concentration, and psychosomatic ailments, such as stomachaches and headaches (Cox and Morehouse, 1989).

Morehouse and Scola (1986) emphasized that "Children of alcoholics constitute a high risk population. Not only are they at risk for developing

physical and mental health problems on a short and long term basis, they have been identified as the highest risk population for developing alcoholism" (p.8). The association between parental alcoholism and the later development of alcoholism in the child has been well documented. Children of alcoholics are more likely to become alcoholics and to start drinking at an earlier age (Rowe, 1989). The Iowa Coalition for Comprehensive School Health Education (1991, p.2) states, "The children of alcoholics are at high risk for becoming chemically dependent".

The alcoholic home is often stressful, chaotic, and lacking in family rituals. It can be doubly difficult to be a child from a racial or cultural minority group and a child of an alcoholic. Minority parents in these homes may be unable to provide the nurturing and support a child needs to deal with the hostility that may be directed at him or her. These children often hear negative and hostile messages directed at who they are and at their ethnic group, their color, their family's language and way of doing things. They often face a dual problem: having chemically dependent parents while also growing up in families experiencing racism (Oliver-Diaz, 1989).

Statistics indicate that over 50% of all juveniles have undetected learning problems. When identifying the young child with a learning disability, one of the many questions asked is, "Does the child suffer from frequent stomachaches or headaches related to school?" (Gilligan, 1987, p. 22). A learning disability has been described as a disorder in one or more of the basic psychological processes involved in understanding or in using language, spoken or written, which may

manifest itself in an imperfect ability to listen, think, speak, read, write, spell or to do mathematical calculations. If not recognized early, this delay in learning can affect emotional and social development. "There is a recognized learning disabilities and juvenile delinquency link among many youth at-risk" (p. 23).

At-risk students tend not to participate in school activities and have a minimal identification with the school. They have discipline and truancy problems that lead to credibility problems. They exhibit impulsive behavior and their peer relationships are problematic. Family problems, drug addictions, pregnancies, and numerous other problems prevent them from participating successfully in school. As they experience failure and fall behind their peers, school becomes a negative environment that reinforces their low self-esteem (Donnelly, 1987).

Jenkins' (1989) impression is that from the following categories there is an increasing proportion of young people who are at-risk of not making a successful transition to productive lives:

1. School dropouts.
2. Low performing students.
3. Run away students.
4. Teen suicide.
5. Drug and alcohol abusers.
6. Youth unemployment.
7. Neglected and abused children.
8. Single parent home.

9. Poverty.
10. Low income housing - "ghetto."
11. Latch-key children.

Jenkins (1989) defines these characteristics of children at-risk in the classroom:

1. Low motivation.
2. Major difficulties in some subject areas.
3. Lack of contextural background. ("You can't discuss World War II without knowing some geography") (p.2).
4. Scarcity of opportunities for successful performance.

Behavior problems observed in children from "broken homes" are often attributed to the parents' divorce. Wallerstein and Kelly (1975) reported clinical data indicating that previously well children demonstrated significant problems with school adjustment after parental divorce. Today, in the United States, one school child in three has parents who are divorced. Thirty percent of these children live in step families. The other 70% live with their mothers or fathers alone. As divorce has become increasingly common in this society, researchers' observations show that children do indeed suffer severely when their parents divorce. Boys in families in which the parents divorced tend to be more impulsive and aggressive than boys in non divorcing families. The children are often neglected, especially in the period immediately following a divorce. Children have less regular bedtimes and mealtimes, eat together as a family less, hear fewer bedtime stories, and are more often late for school. Also, the aftermath of divorce often brings economic disaster for most mothers and

children. Children who are 9 to 12 years old when their parents divorce are most likely of all to suffer psychosomatic symptoms of stress and suppressed anger and to have problems in achievement and conduct at school. A divorce may precipitate an adolescent's dropping out of school, getting pregnant, or getting into trouble with the law (Clark-Stewart, 1989). "Small wonder that children from divorced families are more likely than others to become juvenile delinquents, psychiatric patients, suicide victims. More than half have trouble in school - the result of depression, anxiety, guilt, loneliness, low self-esteem, low achievement, and bad behavior" (p. 61).

The schools continue to provide the most important potential influence, outside the family, in the health behavior of Americans. What remains very clear is that education and health for children are inextricably intertwined. A student who is not healthy, who suffers from an undetected vision or hearing deficit, who is hungry, or who is impaired by drugs or alcohol, is not a student who will profit optimally from the educational process (McGinnis, 1981).

Role of the School Nurse in Assisting the At-Risk Student

In 1988, Rohrbaugh and Rohrbaugh (1990) conducted a study of fourth and fifth graders (N=356) in Williamsburg, Virginia, to better understand who sees the school nurse and why. A tabulation of health-room log book entries revealed that during a five-month study period, over 70% of the students came to the nurse's office at least once. To find out what kinds of children visit the nurse repeatedly, Rohrbaugh and Rohrbaugh correlated total health-room visits with

other student characteristics. Statistically significant correlations ($p < .05$) indicated that the students who came in most frequently were at risk in other respects. Frequent visitors were more likely to be from single-parent or remarried families, more likely to have special academic needs (learning disabilities), and more likely, according to independent ratings by their teachers, to show behavior problems requiring teacher supervision or separation from peers in the classroom. Another strong predictor in this particular study was the classroom teacher. Rohrbaugh and Rohrbaugh found that teachers differed markedly in their willingness to send or allow students to come to the nurse's office. Less experienced teachers appeared to have the highest referral rates.

The Flinn Foundation, Arizona's largest private foundation, commissioned the Health Services Research Center of the University of California School of Medicine, Los Angeles, to conduct a research study involving school children and school nursing services in the state of Arizona. Since most children spend much of their time in school, the foundation wanted to know what conditions the school nurse encountered when the student visited the nurse's office. Most reasons for visiting the school nurse could be easily resolved by medical personnel. Among all 20,263 school nurse visits in the study, fewer than 1% of the children were sent to the emergency room, and only 2% to 3% of children were sent home with instructions to secure prompt medical attention. These numbers, unfortunately, mask the often complex problems the school nurse confronts and the frustration experienced in resolving them (The Flinn Foundation, 1990).

The research design used in the Flinn Foundation study was the number of visits to the school nurse and the results of standardized test scores (The Iowa Test of Basic Skills) administered to fifth graders. When the test scores were plotted against visits, they revealed that students who saw the school nurse most frequently had the lowest test scores. The students included in this group were abused children, homeless children, unclean and unkempt children, children of single-parent families, and children whose family was living at the poverty level (The Flinn Foundation, 1990).

The purpose of a study done by Grey (1988) was to determine if there was a relationship between stressful life events, children's absenteeism and the use of school health services, and to examine the effect of preexisting family characteristics on these relationships. "Absenteeism is a major problem with rates approaching 30% in some areas, and it may be predictive of later problems with school completion" (p. 121). One hundred twenty-four parents of 124 children aged six to eleven years attending a New York City elementary school were questioned. Data collection was accomplished by sending questionnaires to parents of children in sixteen first through fourth grade classrooms in one elementary school. The children ranged in age from six to eleven years with a mean of 7.9 years. Undesirable stressful life events, baseline health status, and family structure routines and functioning were measures at the beginning of the study. Stressful life events were defined as "any set of circumstances that signify or require change in the individual's ongoing life pattern" (p.123). Data on the number of absence [illegible] incidence and type of each visit to the health

room made by the students in the study were collected from school records. Most of the children resided in single parent families with incomes less than $15,000 per year with a total of one to five children. The design of the study was a six month longitudinal survey. The complaints to the nurse were coded on a three-point scale of severity. The coding was performed by Grey and checked by another nurse. Because such simple relationships ignore the possibility that the associations may be explained by preexisting health problems, multiple regression equations were estimated that included health status at entry into the study. Previous health status contributed significantly to the predictions of the children's absenteeism and use of the school health room during the study. The correlation coefficient for these judgments demonstrated high consistency of 0.86. The results of this study suggest that a significant proportion of children's absenteeism and use of the school health room is associated with the occurrence of stressful life events. In addition, those children who experienced both stressful events and unstable family characteristics were more likely to be absent than those who had either alone. This effect was not true for the use of the health room, where those children who experienced stressful life events were the highest users.

An experimental child-initiated care system was developed in the University Elementary School at the University of California of Los Angeles that permitted children, ages 5 to 12, to act independently of adults in seeking care from a school nurse practitioner. Children attending this laboratory school are selected from a large pool of applicants representing families with a variety of

social and economic backgrounds. They were chosen to represent a cross section of the abilities and problems faced by teachers in public school. While 69% were white, the remaining 31% were from various minority groups. Over 300 children were observed for two years. Prior to the beginning of the study in the fall of 1972, children who wished to see the nurse or were thought to need attention, were seen first by the teacher whom either referred them to the nurse's office or asked them to remain in class. The operational principles of the study were:

1. Involvement of the child in decision making will be limited to problems and situations where there is no threat to the health and welfare of the child.
2. Value judgments will not be attached to different patterns of use.
3. All visits are considered to be necessary, from the point of view of the child (Lewis, Lewis, Lorimer, Palmore, 1977).

In the first year of the study, 75% of 1,214 visits made by 369 children were initiated by the children, and in the second year of the study, 99% of 1,229 visits made by 309 children were initiated by the children. Under the child-initiated care system, utilization by girls increased. Seventeen percent of the students did not make a visit to the nurse during the two-year period, and approximately 15% of the students accounted for over 50% of all the visits. Rates of utilization were associated with those variables known to affect adult patterns of use: sex (female), social class (more affluent), ordinal position (only children or youngest children), and health orientations. The pattern of use was not associated with the presence of known medical problems. The two most

common causes for visits were headaches and stomachaches. Multiple regression analyses were done using numbers of visits as the dependent variable. Those factors either reported in the literature on adult utilization or shown to be important components of the theoretical framework were independent variables. These included health orientation (perceived vulnerability), sex, age, locus of control scores (personality), ordinal position, and social class of parents. The presence of medical problems, congenital defects, or history of serious illness, did not contribute to the analysis. Children from more affluent backgrounds made more visits and girls came more often than boys. Psychological orientations were associated with patterns of use. Children with higher perceived susceptibility and who perceived the benefits of care to be greater were significantly higher users of services. The child-initiated care system was a sensitive indicator of children who were distressed for a variety of nonmedical reasons and who sought relief in the nurse's office (Lewis, et al., 1977).

In 1975, Lewis and Lewis (1985) replicated their child initiated care study in four public schools, serving primarily a disadvantaged population. The results were similar, but ethnic differences in utilization were observed. Children of Hispanic descent used the "adult-free" system significantly less often than Asian, Black, or Caucasian children. However, the same portion of "high-users" were identified. An unanticipated event occurred during the replication of the child-initiated care study. With some unexpected funds, and without the knowledge of the researchers, the school district began to provide counseling services in the schools. During the several months that the child initiated care system operated,

the nurses identified the high users in each school. The nurses referred their high utilizers to the counselors who met with these students in group and individual sessions. A dramatic reduction in the number of visits to the school nurse was seen (Lewis and Lewis, 1985). "While the provision of mental health services for adults has failed to decrease the utilization of health services by worried-well adults, it is tempting to believe that children, given a proper diagnosis, may be more responsive to specific treatments" (p.560).

Young adults who participated as children in the study of child-initiated care from 1972 to 1974, were studied again in 1986. Of the 260 young persons located, 71% responded to a questionnaire. During the interval between the two studies, four of the children died. Two of the four deaths were due to suicide, and both victims had been among the most frequent users of care in the nurse's office in both years of the initial study. Girls who were consistently frequent care users in the previous study had a similar pattern of use as young women in 1986. Frequent users as children and young adults had a greater prevalence of headaches and stomachaches, but at both ages boys were less likely to seek care when faced with complaints or perceived health problems. A significant association was found between consistently frequent care users as a child and subsequent academic problems as a young adult (Lewis and Lewis, 1989). "The importance of identifying children with chronic complaints, unrelated to physical causes, and helping them to deal with the true sources of their distress is emphasized by the data" (p. 845).

As part of a study of presumably normal adolescents, visits of high school

students to the school nurse were analyzed by Rogers and Reese (1965) from January, 1957, through June, 1960, in an eastern high school consisting of approximately 320 males and 375 females. On each visit to the health room, the student recorded on a form his/her name, class, date of visit, time of day, teacher's class from which excused, and reason for visit. The student was then seen by the nurse who questioned the student further and noted pertinent observations, treatment given, disposition of the case, and evaluation of the cause for the visit. These records were reviewed by the school physician who made final classification of the reason for the visit. Ninety-five percent of the visits were easily classified into one of 14 categories: headaches, minor injury, major injury, dysmenorrhea, gastrointestinal disorder, respiratory disorder, toothache, skin disorder, emotional disorder, general malaise, acute exanthem, nose bleed, medical advice and medical service. A fifteenth category of "other" was composed of areas such as non health problems and a variety of infrequently occurring events. Students were ranked in order of frequency of visits. The 5% visiting most frequently were designated as the "high frequency" group. Approximately 15% were designated "moderate frequency" and the remainder of those making visits were called the "low frequency" group. Males were more often in the "none" category and less often in the "moderate" category than females. In a given year, over half the boys and more than two thirds of the girls visited the health room at least once. Females exceeded males by specific cause in the categories of headache, respiratory disorder, and emotional disorder. Males exceeded females in the major injury category. Freshman males had

consistently low rates of health room visits for all causes. Males made a high percentage of visits in the category of "no health problem" (i.e. malingering). Other characteristics of students with high health room visit frequency were: low academic rank, high average hours per week of outside employment, low participation in school activities, high absenteeism, and high likelihood of dropping out of school before completing the academic program. "School health programs should be designed and their personnel professionally prepared to handle the social and emotional aspects of problems presented by students who frequently visit the health room of a high school" (p.41).

In order to obtain basic descriptive information and to investigate some suspected relationships between students at increased risk academically and socially and frequent visits to the school health room, Van Arsdell, Roghmann, and Nader (1972) studied student visits to an elementary school nurse over a three month period of time. The study was conducted as a training and research component of the State University of New York. The school nurse kept a data sheet on each student who visited the health room during the 12 week period. The data were recorded on precoded forms and were reviewed weekly. The variables covered identification, complaint, where and how student came, what was done, length and time of visit, and disposition. In addition, student data were collected on all 401 students. School records provided sex, birthdate, grade, race, socioeconomic area of residence, standardized achievement scores, and number of days absent during the study period. Family data were also obtained from questionnaires mailed to the parents. Teachers' evaluations of classroom

dependency behavior and peer relationships were determined using a five point rating scale. The teacher also supplied an average grade for each student's work during the study period.

During the three month period of this study, 532 visits were made by 230 students at a mean rate of 9.7 visits per school day. Fifty-seven percent of the students visited the school nurse at least once. Approximately half the visits concerned a complaint of trauma that was mostly quite minor. The other half of the visits were for medical service (such as a request for a band aid), gastrointestinal complaints, or a skin or soft tissue problem. Significantly greater numbers of visits were found among the older students, black students, students from families in which mothers had been hospitalized for illness during the previous year, and among those with lowest academic achievement. Students who were rated by teachers as being more dependent upon the teacher than other students, and those believed by teachers to be less accepted by peers, also had a greater number of health room visits. According to these researchers, the school nurse is in an ideal situation to learn about students and their families. The nurse is also in day-to-day contact with teachers and can generally relate to families, teachers, and the medical community in a relatively non threatening manner. Because high risk students may seek the school nurse's help with relative frequency, the nurse would seem to be in an excellent position for facilitation of "secondary prevention" of health problems (Van Arsdell, et al.,1972).

Why does a high school student come to the nurse's office? What is the significance of repeated visits? A partial answer to these questions was found in

a study done in a 1,400 pupil junior-senior high school from September, 1952, to June, 1953. Those who came to the office and remained more than a half hour for any reason were the students who were studied. The student on each visit filled out a form with name, homeroom, date, and reason for the visit. The nurse also wrote on the form such things as temperature, symptoms, and what action was taken (Clement, 1954).

The data for the school year showed there were 1,588 visits of more than 30 minutes to the nurse's office, and that 605 pupils, or less than half the population of the school, made these visits. Six-hundred and eight visits were made by boys and 980 visits were made by girls. Of the 1,588 visits, 1,495 ended with the students returning to the classroom, 26 students were sent to the hospital and 67 were sent home. Of the 605 who stayed 30 minutes or more, 255 came only once while all others made repeated visits. Dysmenorrhea was the reason for most of the visits made by the girls with "alleged" colds being the next most common reason for coming to the nurse's office. An upset stomach or stomachache accounted for many visits as did headaches. This study helped not only to learn the actual number of visits to the nurse's office, but also to gain further understanding of the student's reasons for coming. Thus, conferences between the student and the nurse may uncover the real causes for the student's visits (Clement, 1954).

Arneson, Triplett, Schweer, and Snider (1983) believe that school nurses are one group that has the potential for helping many children cope more effectively with their parents' drinking. They posed the question, "Are school

nurses actually able to identify children of alcoholics, and, if so, what services are they offering?" (p.108). To find answers to these and other questions, an exploratory study was designed and implemented. The subjects of this study were 249 of the approximately 350 school nurses in the state of Iowa. The majority of the subjects (57%) served grades kindergarten through 12 in school systems of 500 or more students (75%). Most of the nurses (58%) had been employed in their present school district for more than 5 years, and over three-fourths of the respondents had been actively employed in nursing for more than 10 years.

A two part questionnaire was developed for the study. Part I was designed to elicit information on the:

1. school nurses' awareness of children from alcoholic homes.
2. factors that precipitated their awareness of such children including direct observations of the children's behavior.
3. types and numbers of interventions the nurses employed with the children.
4. factors that either encouraged or discouraged them on their attempts to help these students (Arneson, et al.)

Part Il of the questionnaire focused on selected demographic data including grades served, enrollment, length of employment, number of years actively employed in nursing and professional preparation for working with alcoholic families. When asked if they knew of any students in their schools who came from homes where one or both parents had a drinking problem, 93% of the

nurses answered in the affirmative. The most common factor that precipitated the nurses' awareness of these children was community knowledge or rumor (70%). Forty-three percent of the nurses stated that they learned of the child's home situation from the child's own verbalization of the problem. In addition, more than one-third of the nurses indicated that the child's appearance and behavior provided them with additional clues that potential problems existed. More experienced nurses and nurses serving larger school systems identified significantly more behavioral manifestations of distress among the students than recently hired nurses in smaller school systems. Those students who were identified most frequently were those having low self-esteem, poor physical care, frequent unexplained absences, and poor academic achievement (Arneson, et al., 1983).

The school nurses employed a variety of interventions in working with these children. Most of their efforts were directed toward enhancing the children's self-esteem and dealing with their frequent absences from school. When asked what factors discouraged them from intervening with these students, the nurses identified as major deterrents their inability to identify these children and their lack of skill in knowing how to work effectively with these youngsters (Arneson, et al., 1983).

Nurses in both community and inpatient settings frequently interact with individuals who are affected in some way by alcoholism (Arneson, Schultz, Triplett, 1987). Nurses, more frequently than probably realized, intervene in the problems that confront children of alcoholics. Despite health care professionals'

growing awareness of the problems that they face, children of alcoholics often go undetected. For instance, the child who is getting into trouble at school, or the child who shows symptoms of depression, may be the child of an alcoholic. Nurses and other health professionals are unlikely to hear directly from the child of the family "secret" or the impact upon the child. Therefore, nurses must learn to look for the effects upon the offspring. For example, children of alcoholics, suppress their anger to the point that they are unaware of it, so nurses who work with children of alcoholics need to be aware of the difficulty that these children experience in expressing their emotions. The nurse who works in a school is often the health professional most likely to recognize the child of an alcoholic parent. Nurses who work with general populations, such as in a school setting, can focus on educational and screening programs, that provide children of alcoholics an opportunity to learn about and discuss the difficulties shared by those who grow up in homes in which alcohol is the focus of all attention (Rowe, 1989). Evidence indicates that these children are at risk for developing physical and psychosocial health problems resulting from emotional neglect, physical abuse, or inconsistent parenting. When these children reach adolescence or young adulthood, many turn to alcohol themselves or marry alcoholics. If this cycle of alcohol abuse is to be interrupted, it is imperative that children be identified in early childhood and offered the assistance they may need to develop constructive coping strategies. These researchers maintain that school nurses are often in the best position to recognize incipient problems. (Arneson, et al., 1987).

Although nurses are in key positions to work with children from alcoholic

homes, they have not been a leading force in the continuing movement to meet the needs of these children. A study of 249 school nurses, most of whom had contact with children of alcoholics, revealed the major deterrents to becoming involved were difficulty in identification and a perceived lack of the necessary knowledge and skills. Only 20% of the nurses in the study recalled receiving any preparation in their basic nursing courses for working with family members of alcoholics (Arneson, Triplett, Schwerr, Snider, 1983).

Child abuse and neglect represent a continuum of significant health and developmental problems for children and youth in the country. The generic term "child maltreatment" refers to the entire spectrum encompassing physical, sexual, psychological, and multiple abuse, as well as physical, medical, educational, and emotional neglect and abandonment. The incidence and mortality rates of child maltreatment are not known, but estimates range from one to four million cases each year with from three to five thousand deaths. Child maltreatment occurs in all socioeconomic groups and races and affects children of all ages. An increased incidence has been noted in low socioeconomic groups, but this may only be due to better reporting in this population. The effects of maltreatment on children are profound. In addition to death, the sequel of child abuse includes disfigurement, major emotional and psychological damage, brain damage or retardation, and the potential for perpetuation of abuse in the next generation. Children who are the victims of violence and neglect, and the several million children who are witnesses to violence between their parents, are also at risk for behavioral problems, personality changes, conduct disorders, developmental delays, and low

achievement in school (Schwab, 1989). "School nurses, as the primary health care providers in the school setting, have a central role to play in the prevention and early recognition, assessment, reporting, and follow-up of suspected child abuse and neglect" (p. 17).

Suicide is often a preventable tragedy. As a skilled health professional and educator, the school nurse can assess, plan for, and implement programs for suicide prevention in the school setting. The school nurse, while practicing nursing in an autonomous fashion, is a valuable member in a team approach to crises intervention. Frequently, the school nurse is the active listener whom a child in turmoil will seek out for support (Bakkala, 1990).

It is recognized by Porter (1987) that school nurses are key people because, predictably, school-phobic children exhibit somatic symptoms during the early stages of school phobia, and the school nurse is often the first person in the school environment this child will seek for assistance. "The role of the school nurse is critical in dealing with school phobia among school age children" (p. 8). Frequently during the subjective data collection a precipitating factor is a family history involving a loss of a family member, desertion of a family member, or an injury to the mother. "It is a frightening, dramatic, serious experience for children and if left undetected or not treated promptly, can present a threat to the child's psychological health and educational development" (p. 10).

Because of their unique position in the school, with no responsibility for grading or evaluating students, school nurses can play a more neutral role offering the support and understanding many students seek (Compton, Duncan,

Hruska, 1987). Some assets of this unique position of the school nurse can be identified in these ways:

1. A person known by all the children.
2. A person seen by students as outside the hierarchy of authority.
3. A person available to every student.
4. A person in a lateral profession and not a competitive profession with teacher colleagues.
5. A person who is a connecting agent among the student, the school, and helping agencies outside the school.
6. A person who can build up a holistic picture of each student because of access to medical history, physical development, educational progress, family background, social relationships, and emotional maturity (Oda, 1991).

Lewis, Lewis, Lorimer, and Palmer (1977) found that higher rates of utilization of the school health room were associated with psychological distress resulting from the occurrence of stressful events. Mental health needs of children in the public school system are addressed by Opie and Slater (1988) who believe children are often exposed to situations, such as divorce, death of a significant person, illness of parent, change of residence, loss of friends, poverty, unemployment, neglect or abuse, and addictive behaviors, that affect their coping abilities and mastery of developmental tasks resulting in school difficulties. According to Opie and Slater, the school system has the opportunity to provide primary prevention and early intervention that will promote the mental health of

children. The role of the child psychiatric mental health nurse in the school is described as one model for promoting the mental health of children. "Since the school nurse is well known, trusted, and respected by school children, school personnel, and parents, the school mental health nurse is not as threatening to the child as a psychiatrist or community mental health agency" (p. 34).

School nurses nationwide say their student patients represent a broad range of families, from the working poor who do not qualify for medicaid, to the middle class who "fall through the cracks" for medical assistance, to small business employees who, in many cases, are underinsured. Cut off from family health insurance by layoffs and "bare-bones" company insurance policies, many families are turning to school infirmaries for medical care for their children. People who at one time would go to a physician or an emergency room are choosing scars over stitches (Alexander, 1991). Barbara Ward, 1991 National School Nurse of the Year, also writes that youngsters are falling through the cracks. Many parents are among the working poor who cannot afford health insurance. For such children, school nurses have become the person families turn to for medical assistance (Ward, 1991). An example of this phenomona was reported by Alexander (1991). She stated that a school nurse in Maryland sees an average of 70 students each six-hour workday, many of whom have no dental or medical coverage.

Among school personnel, the school nurses are uniquely qualified and licensed to perform a variety of key functions. "They encompass health assessment and diagnosis, ensuring the provision of high quality school health

services, teaching students self-care in maintaining their own health, health-related training of school personnel and coordination of school-based and community aspects of care" (Schwab, 1991, p.3).

Grey (1988) suggests that school health professionals are in a unique position to address the needs of school-aged children but must be able to identify those children who are at-risk for school problems. For example, knowing that a child is experiencing a parental divorce, with its associated stressors, should alert the health provider of the potential for this student to have more absenteeism and to need more health services. School nurses are educated in the area of adaptation and are, consequently, in the best position to understand and assess school children's adaptation by using concepts and principles of growth and development, poor nutrition, impact of life events, and social readjustment. These adaptation techniques can become the basis for development of an appropriate nursing care plan for the individual student.

School nurses contribute essential ingredients to the school health program by using their unique skills and knowledge to benefit the health of the school community (Bays, 1991). The physical, social, emotional, and educational needs of students are addressed by the school nurse through the promotion of wellness, early detection of health problems, and prevention of disease or disability. The school nurse plans and utilizes intervention strategies for injury, acute illness, and emotional disturbance. The school nurse is well prepared to meet the health and environmental challenges presented in today's schools through the use of the nursing process: student assessment, nursing

diagnosis, plan of care, implementation of the plan, and evaluation or follow through (Bakkala, 1990).

Understanding the determinants of children's use of school health services is important to planning school health programs (Grey, 1988). Investigators have suggested that stressful life events frequently precede illness in children (Grey; Lewis, et al., 1977). Studies have shown that a great majority of children come to the school nurse not for care of common communicable diseases but rather for psychosomatic ailments (Grey; Rohrbaugh and Rohrbaugh, 1990; The Flinn Foundation, 1990). Many of these complaints may have their roots in the stressors experienced by children. School nurses need to be aware of this association to assess and manage the situation appropriately. A dose of understanding and a spoonful of communication may be more effective for such complaints as recurrent headaches or abdominal pain than are acetaminophen or an antacid. Once determinants of these psychosomatic ailments are identified, the school health professional can work with the child to develop and improve coping and communication skills (Grey, 1988). Only a few studies pertaining to the use of school health services by the at-risk student have been reported (Salmonsen, 1988).

Need For Study of the At-Risk Student

The purpose of the study of the at-risk student was to add to the body of knowledge in determining if the at-risk student uses school health services more than the non at-risk student. It is also hoped that some positive implications for

the future of school nursing may be the result of this research. For many, a natural entry point into the health care system is the school nursing service. Indeed, school nurses are the vanguard in the fight against drug use, teen pregnancy, and child abuse. Because good health is essential to optimal learning, school health services and school nursing must be responsive to the needs of school children living in today's environment. And yet, though the profession has existed for almost 90 years, many do not really know what a school nurse does (Oda, 1991).

To value the role of the school nurse as a promoter of health for school children, the public needs a clear, accurate image of what the nurse does and why the school nurse is essential for an effective health program. For the public to perceive school nurses as valuable, people must have precise information about the services provided and understand the consequences if the services are lost (Bays, 1991).

While Oda (1991) thinks school nursing tends to have a "no image" or invisibility problem, Mehl (1990) challenges that the old image of the school nurse is changing. "No longer does the nurse simply keep track of required immunizations and hand out Band-Aids. In today's schools, as a result of advancing medical technology and federal mandates, schools must accept and help students with profound health problems" (Mehl, 1990, p.22). Mehl further states that timely and appropriate intervention by the school nurse can minimize school absences and, thus, maximize student learning potential.

While progress is being made in the area of school nurses working with

the educational process, more advancement is needed. One possibility could be legislative action mandating that every school district nationwide employs a school nurse for every 750 to 800 students. The part which the school nurse takes in health education and health counseling should be expanded (Nash, 1988).

Ward (1991) adds that while school nurses think their role should be expanded, school districts are consolidating or even eliminating their positions. Budgetary constraints have forced many school systems to reduce the number of nurses available (Alexander, 1991). "We want to see a healthier nation, but as economic pressures increase, we have seen programs cut back and case loads increase. It is ironic: just when we face greater demands, we are cutting back on the services that would make a difference" (Ward, 1991, p.21).

School nurses are the front-line troops, the "M.A.S.H." units, serving the health care needs of our school-age children. In the face of budgetary restraints and mixed reports on the effectiveness of school health services, it is not surprising that policy makers are asking if dollars allocated for these services are cost-effective. Indeed, many school health budgets already have been reduced or eliminated. Is this a wise decision? Are educators, primarily responsible for helping children learn, overlooking the importance of how children "feel", or how their health status affects their ability to learn? Is it time to reexamine the scope and meaning of "school health?" (Murphy, 1990, p. 1).

For school nurses to be recognized as vital to the health of school children, the public must believe that the nurses' many roles are high-quality, cost-effective contributions to the school health program. They must understand that

school nurses are versatile, cost-effective health professionals who function in many roles as planners, providers, and coordinators of client care, teachers, investigators, program managers, collaborators, and researchers (Bays, 1991).

Our nation's children are our most vulnerable population, according to Susan Lordi, president of The National Association of School Nurses. She further states that school nurses see children every day who, for numerous reasons, do not have accessible, affordable health care. Many disorders or health issues could be managed by a nurse in the school setting at minimal cost for maximal effects (Lordi, 1991). "What will happen where there is no school nurse, no access to the public clinic, and no insurance to access the private system? After all, we are caring for our nation's future" (p. 12).

Since school nurses are educated in assessment skills involving perception, integration, and adaptation using concepts and principles of growth and development, nutrition, impact of life events and social readjustment along with family functioning, they have the capability of defining possible interventions to the students and families. Having a positive relationship with the students and families strengthens this capability. Only by thorough and accurate documentation of student outcomes and cost-effectiveness of the school nurse's services along with research and publication will the "right people" be told about the need for the school nurse's expertise in the educational setting (Salmonsen, 1988).

Wold (1981) stresses "Whatever the reasons behind the appalling lack of research to support school nursing interventions and to document their outcomes,

there is an acute need for immediate action to correct the problem. It is no longer adequate or prudent for school nurses to aver that school nursing services 'obviously' make a difference in children's abilities to learn effectively; if the school nurse is to remain a viable part of the school program, she must present data documenting her effectiveness" (p. 488).

CHAPTER III

METHODOLOGY

Overview

To determine if the at-risk student visited the school nurse for health related concerns more often than the non at-risk student, the school nurse's daily log and information concerning each student obtained from parents, classroom teachers, guidance counselors, and administrators were analyzed.

Description of Setting and Subjects

The sample was composed of 1,474 students ranging in age from five through eighteen years in grades kindergarten through twelve, attending a public school that serves a rural midwest population. Three buildings formed this education complex. One school building was comprised of grades kindergarten through fourth and seventh and eighth. Ninth through twelfth grades were in a separate building. Fifth and sixth grades were in yet another building. A certain percentage of the students lived in rural poverty, while another percentage had backgrounds of suburban affluence. The school district placed some emphasis on special educational benefits, including programs for the gifted and talented student as well as the slower learner. The school district employed two full time nurses, of which the researcher was one. The two nurses alternated among the three attendance centers. One nurse was in attendance full time for grades kindergarten through fourth and seventh and eighth. The other nurse was in atten-

dance half days for grades five and six in one building and nine through twelve in another building. Both nurses had the nursing responsibilities of all school children in all buildings and were jointly accountable to the building principals and to the superintendent.

Instrumentation

The instruments used to conduct this study included the school nurse's daily log, information obtained from all parents at the time of student registration, and information concerning each student obtained from the classroom teachers (grades kindergarten through six) and from guidance counselors and administrators for grades seven through twelve.

In order to ascertain the student at-risk status, general information obtained by the school nurse from all parents when registering their children prior to the beginning of the school year was assessed (Appendix B) along with knowledge gained earlier, by the school nurses, about each student. As part of the assessment of student needs, a check list with the at-risk categories listed (Appendix A) had been given previously to individual classroom teachers kindergarten through sixth grade. Class lists of seventh and eighth grade students along with a list of the at-risk categories were given to the junior high guidance counselor while the two senior high guidance counselors and the administrator were given class lists of ninth through twelfth grades with the listing of the at-risk categories. These completed checklists provided further information that the researcher used to ascertain the status of students who visited the school nurse.

Protection of Human Subjects

The research proposal for this study was submitted to The Human Subjects Research Review Subcommittee of Drake University for permission to conduct the study. The proposal was then submitted to the local school district and permission was given to conduct the study (Appendix C). All information obtained from classroom teachers, guidance counselors, and administrators was destroyed following the computation, thus assuring confidentiality. All data have been presented in aggregate.

Procedure

Data for this study were collected previously as an assessment tool for use by the school nurses. It was the desire of the researcher to do further analysis on the existing data.

Each time a student visited the school nurse, the name of the student, approximate time, chief complaint, and procedure or treatment completed for the student by the school nurse was entered into the daily log book. Should the need arise for the school nurse to vacate the school nurse's office, the door was closed and locked, according to school policy. This did not allow entrance for a visit by a student.

A list of all students by individual classrooms was obtained. The occurrence of a visit by the at-risk student or non at-risk student for a health related concern was defined as a student visiting the nurses office one or more

times a day. Therefore, if a student had visited the school nurse for a health related concern throughout the study, and it was the initial visit of the day, a mark was placed behind the student's name (Appendix D). If the classroom teacher, guidance counselor, or administrator had placed a mark behind a student's name in one or more of the at-risk categories used for this particular study (Appendix A), and that student had visited the school nurse's office for a health related concern during this particular study, the student was considered an at-risk student. A mark was then placed by the researcher in the at-risk column of a separate chart for each initial daily visit (Appendix E). If the classroom teacher, guidance counselor or administrator had placed no mark behind an individual student's name in any of the at-risk categories, and this student had been seen in the school nurse's office for a health related concern throughout this study, a mark was placed in the non at-risk column for each initial daily visit (Appendix E). A daily total of all student's, both the at-risk and non at-risk students, initial daily visit to the school nurse was compiled by the researcher (Appendix E). A comparison of the proportion of visits to the school nurse's office by the student considered at-risk and the student considered non at-risk by definition was then computed.

Data Analysis

This descriptive study used an ex post facto design. Using a non-probability, convenience sampling method, the study was done of the entire

student population. The study assessed whether a relationship existed between two or more variables, which were visits to the school nurse's office for health related purposes by the at-risk and non at-risk student. The collection of information related to the dependent variable resulted in nominal data. Therefore, a non-parametric procedure was done using an Irwin-Fisher method to test the hypothesis of equality of population proportions. Since a non-directional hypothesis was proposed, a two-tailed test was implemented. The results were analyzed at an alpha level of .05. The Irwin-Fisher method tested the hypothesis of equality of population proportions for two independent groups, the at-risk student and the non at-risk student, that are classified dichotomously on an outcome measure (visits to the school nurse computed on a daily basis). Multiple daily visits by the same student were counted as one occurrence for statistical analysis. A Z value formula for comparing proportions of large samples was used (Marasciulo and McSweeney, 1977).

CHAPTER IV

ANALYSIS OF DATA

The purpose of the present study was to determine if there was a significant proportional difference between the at-risk student and the non at-risk student in the number of visits for health related concerns to the school nurse in a public school system. In this chapter the demographic characteristics of the sample and the statistical results pertaining to the study will be presented. Data collected by the researcher are presented in tabular form (Appendix F). These tables give the day to day initial visits to the school nurse as well as the total number of daily initial visits at each attendance center for both the at-risk and non at-risk student. These data were used for the statistical analysis.

As predicted, there was a significant difference in the number of visits to the school nurse's office for health related concerns when the at-risk students and the non at-risk students were compared. The research hypothesis was supported and the null hypothesis was rejected.

An Irwin-Fisher test for dichotomous variables (at-risk students and non at-risk students) was used for the statistical analysis. A Z statistic was implemented with the Z value (16.44) showing a significance ($p < .05$) for the total population (Table 4.1).

Table 4.1

Results of Irwin-Fisher Statistical Analysis

First Time Daily Visits to School Nurse

Total Population		
At-Risk Proportion	Non At-Risk Proportion	Z Value
0.053	0.035	16.44**

*p < .05 **p < .01

A Z statistic was also executed on the data from the three individual attendance centers. While the total population of at-risk students and non at-risk students visiting the school nurse was being tested, it is of interest to note that a significant difference ($p < .05$) was also demonstrated at each of the three attendance centers (Table 4.2).

A further break down by months of the average percentage of first time daily visits to the school nurse is also given. This has been computed for the total population as well as the three attendance centers (Appendix G).

A total of 1,474 students in grades kindergarten through twelfth were attending this mid-western public school system at the time of the study. According to the definition of an at-risk student used for this study, 735 students in the school were considered at risk while 739 students in the school were considered non at-risk. This indicates an even distribution of the two populations.

Of these 1,474 students, 1,133 students visited the school nurse for health related concerns at least one time during the study representing 77% of the total school student population.

Table 4.2

Results of Irwin-Fisher Statistical Analysis

First Time Daily Visits to School Nurse

Grades K-4 and 7-8		
At-Risk Proportion	Non At-Risk Proportion	Z Value
0.076	0.046	17.65
Grades 5-6		
At-Risk Proportion	Non At-Risk Proportion	Z Value
0.019	0.014	3.13**
Grades 9-12		
At-Risk Proportion	Non At-Risk Proportion	Z Value
0.032	0.020	6.86**

* $p < .05$ **$p < .01$**

Of the 1,474 students in the study, those frequenting the school nurse's office included 585 at-risk students and 548 non at-risk students. Again, this indicates a fairly even distribution of the two groups of students. During the 95 day study, the frequency of first time daily visits (Appendix H) for health related

concerns for all students was 6,135 visits. Of these visits, 3,672 were by at-risk students compared to 2,463 by non at-risk students. This accounts for a daily average of 64.5 visits by students to the school nurse. There was a daily average of 38.6 at -risk students and 25.9 non at-risk students requiring attention from the school nurse. Because of no school due to inclement weather, holidays, and/or staff inservice days during some of the months of the study, more school days during the months of February, April, and May could account for more student visits those particular months (Appendix H). Throughout the study, the greatest number of students visiting were in grades kindergarten through fourth and seventh and eighth (4,770) (Appendix H). Because more students (843) attended this center, plus the fact that a nurse was in attendance full time for these particular students and only half time at the other two centers, could explain this statistic.

Bar graphs showing the frequency of initial daily visits for the total population of students (Appendix I), as well as for the three attendance centers, give a more vivid picture of the statistical findings. The graphs for grades kindergarten through fourth and seventh and eighth can be found in Appendix J, grades fifth and sixth in Appendix K, and grades ninth through twelfth in Appendix L. The average percentage of initial daily visits by the total population of at-risk and non at-risk students is also shown by graph (Appendix M) as well as by attendance centers, kindergarten through fourth and seventh and eighth

(Appendix N), fifth and sixth (Appendix O), and ninth through twelfth (Appendix P).

CHAPTER V

DISCUSSION OF FINDINGS

The present study was designed to investigate whether at-risk students or non at-risk students visit the school nurse more often for health related concerns. Each student in the school population was categorized either at-risk or non at-risk. The results of the study show that at-risk students visit the school nurse for health related concerns more frequently than non at-risk students. This supports the findings of Rohrbaugh and Rohrbaugh (1990) which revealed that among fourth and fifth graders, during a five month study, the students who visited the school nurse most frequently were at-risk in some respect. While both studies covered a five month span of time, the current study used a larger population of students (1,474) compared to 356 by Rohrbaugh and Rohrbaugh. Also, the present study used a wider age span (5-18) and grade span (K-12) in comparison to Rohrbaugh and Rohrbaugh using only grades 4 and 5.

The frequent visitors to the school nurse in a study by Roger and Reese (1965) were students with high absenteeism, low academic achievement, and a strong likelihood of not completing high school. Doing a study on child initiated care, Lewis, Lewis, et al., (1977) revealed that students who were distressed for a variety of non medical reasons sought relief in the nurse's office. Grey's (1988) study demonstrated that students who experienced stressful life events were the most frequent visitors to the school nurse. A more recent study

completed by The Flinn Foundation (1990) indicated that students who saw the school nurse most frequently had the lowest test scores on the Iowa Test of Basic Skills and included abused children, homeless children, unclean and unkempt children living at the poverty level, as well as children of single parent families. This study and the previously cited studies suppport the conclusion that at-risk students do indeed seek aid for health related concerns by visiting the school nurse more often than the non at-risk student.

Limitations

Attention should be given to the possibility of internal validity problems. Since internal validity depends upon the definition of the at-risk student, should that definition be changed, it could affect the outcome of the study. It would be beneficial if the educational and health disciplines agreed upon a definition for the at-risk student. The possibility of the fine-line between the student with one at-risk factor and the non at-risk student is recognized. The internal validity can be strengthened if the definition of the at-risk student included two or more of the factors tested in the definition of the at-risk student. However, this could limit the sample size to a degree that the study might not be feasible.

The reliability of the data collection procedure should be examined. A less subjective means could be used in identifying the at-risk student. Since there was teacher, guidance counselor, and administrator variables involved, the study would be strengthened if a standardized procedure was used for determin-

ing the criteria as to which students are at-risk.

Any researcher must be cognizant of the identified at-risk student, by definition, who never seeks assistance from the school nurse. Because of regular and more frequent visits to the school nurse by the at-risk student, it is possible this student then becomes less at-risk. A student becoming at-risk during the study and not being recognized as such is yet another possibility. In addition, the statistical outcomes might have been affected had daily absenteeism, attrition, and new students to the district been included in the statistics.

Recommendations

Because of the sampling technique and the non experimental design of the study, future replication of this research data would yield important information. If results of this study were to be replicated on a larger scale, health professionals and educators might be able to develop programs for students and families which would help students deal with stressful occurrences in a more healthful manner.

A study involving more than one school district or comparing and contrasting a more metropolitan, less homogeneous area, to the present study, could increase awareness of the at-risk student. A study based on different geographical areas might reveal striking differences. If an increased sample size or less homogeneous sample was used, however, the researcher might need to investigate redefining the definition of the at-risk student.

A study to determine what specific category of at-risk student is seen most

often by the school nurse would have merit. Determining what gender of at-risk student visits the school nurse more often, such as studies done by Clement (1954) and Lewis and Lewis (1989) could aid in early recognition of the at-risk student. Or a study of individual grade levels or age groups to determine if there is a difference in the symptomatology of the at-risk student when visiting the school nurse could enhance early intervention. Does the at-risk student visiting the school nurse present more vague somatic complaints or behavior problems than the non at-risk student? An analysis of this question could provide valuable information for school nurses. It is conceivable that students could be classified from least to most at-risk based on the number of characteristics they display.

Intervention strategies, only briefly described in literature, focus primarily on crises intervention and supportive counseling. Little data exists on whether intervention strategies are effective in providing support or preventing long-term problems. Future researchers replicating this study may find it beneficial to do a longitudinal study on the effectiveness of early recognition, intervention, and counseling with the at-risk student. A well-documented research project could identify young students at-risk and programs could be initiated for the student as well as the parents.

Implications for Nursing

Based upon this present research and past and future research, the significance of nursing and the need for and importance of the school nurse are validat-

ed. This study demonstrated that school nurses are on the front line in identification and intervention for the at-risk student.

However, due to budgetary cuts and constraints, a decrease in the number of school nurses is happening. School nurses need to strive for legislative action mandating every school district to employ one school nurse for every 750 to 800 students.

In order to increase the awareness level of everyone, school nurses must make themselves more visible to the general public, as well as to co-workers, administrators, school board members, and parents. School nurses must be wiling to "sell themselves". Also, school nurses could expand upon the knowledge and skills already possessed by obtaining more education, both formal and informal, which would increase visibility and credibility.

The importance of and need for the nurse in the educational setting must be addressed. The public needs to appreciate that school nurses are prepared to use knowledge and skills in the prevention, identification, and management of children's health problems.

It is not enough for school nurses to continue doing the same nursing skills more efficiently. Rather, they must focus on expanding professional recognition for the knowledge they already possess to meet increasing needs of at-risk children. In this way, the informed public will be able to value and support the role of the professional school nurse. The public will know that expanded support of school nursing is a worthwhile investment in the future health and

welfare of the population of children in the nation.

The many issues of the at-risk student, while complex, should in no way discourage intervention and coordination by the school nurse and other school personnel to meet the issues of the at-risk student. Early recognition and intervention with the at-risk student could be beneficial not only for the student but to society in general. School nurses, because of their position in the educational setting, have the opportunity not only to identify these students at risk but, also, to provide knowledgeable support and guidance.

A minimal amount of research has been conducted concerning the at-risk student, and, particularly, the visits to the school nurse by the at-risk student. More research and publication of this growing concern needs to be encouraged. Nurses must participate in and conduct research that will enable the nursing profession to more effectively recognize and intervene with at-risk students.

Increased content-related courses for nursing students in the psycho-social aspect would enhance nursing education. Frequently, the school nurse is the first contact in the school system with the at-risk student. Therefore, increased knowledge in this field would aid and enhance the skills of the guidance counselor and increase interdisciplinary corroboration.

The at-risk student problem is not going to be eliminated and will only increase without interdisciplinary corroboration and cooperation with class room teachers, guidance counselors, administrators, and parents. A team work approach is needed in dealing with prevention, early identification, and early

intervention. This will most certainly benefit not only the student and family but our entire society.

The results of this study support and extend the concepts identified by Satir in her family system's theory. At-risk children were shown to have increased contact with the school nurse. It could be postulated that this would indicate a potential for dysfunctional individuals which could cause future problems for society. This would support an interdisciplinary approach to breaking the cycle for the at-risk student.

REFERENCES

AAP urges schools to strengthen role in identifying suicidal students. (1991, February). School Nurse, 7,(1), 35.

Alexander, Suzanne. (1991, June 21). Families turn to school nurse for health care. Wall Street Journal, 1991.

Arneson, S., Schultz, M., Triplett, J. (1987, August). Nurses' knowledge of the impact of parental alcoholism on children. Archives of Psychiatric Nursing, 1, (4), 251-257.

Arneson, S., Triplett, J., Schweer, K., Snider, B. (1983). Children of alcoholic parents: Identification and intervention. Children's Health Care, 11, (3), 107-112.

Bakkala, Celine. (1990, February). The role of the school nurse in suicide prevention. School Nurse, 6, (1), 13-15.

Baldwin, Pamela. (1987, March/April). School-based clinics: the role of the school nurse. School Nurse, 20-23.

Bays, Claudia. (1991, October). The school nurse: Enhancing professional recogntion. Journal of School Nursing, 7, 3,18-24.

Belitsos, George. (1991, September 23-29). Sex, suicide: survey reports young lives less than idyllic. Monday Update, 2.

Clark-Stewart, K., Alison. (1989, January). Single-parent families: How bad for the children? National Association, 60-64.

Clement, Mary K. (1954, December). Why do adolescents visit the school nurse? The American Journal of Nursing, 54, (12), 1515-1516.

Compton, Nancy, Duncan, Marce, Hruska, Jack. (1987). How schools can help combat student pregnancy. NEA Publication, 16-17, 34-35.

Cox, Barbara, Morehouse, Ellen. (1989). The role of pupil personnel services staff with COAs. It's Elementary: Meeting the Needs of High-Risk Youth in the School Setting. The National Association for Children of Alcoholics, South Laguna, California.

Davis, Sally. (1989, June). Pregnancy in adolescents. Pediatric Clinics of North America, 36, (3), 665-680.

Donnelly, Margarita. (1987). At-risk students. ERIC Digest Series, 21, 1-2.

Frymier, Jack, and Gansneder, Bruce. (1989, October). The phi delta kappa study of students at risk. Phi Delta Kappan, 142-146.

Gilligan, Julie. (1987, November/December). Understanding learning disabilities. School Nursing, 22-25.

Grey, Margaret. (1988). Stressful life events, absenteeism, and the use of school health services. Journal of Pediatric Health Care, 2, (3), 121-127.

Guidelines for Serving At-Risk Students. (1989). Iowa Department of Education, Division of Instructional Services, 1-20.

Health Gram Publisher. (1991, September). Iowa Coalition for Comprehensive School Health Education. Iowa Medical Society, West Des Moines, Iowa.

Hibbard, R., Brack, C., Rauch, S., Orr, D.. (1988, March). Abuse, feelings, and health behaviors in a student population. American Journal of Disease of Children, 142, 326-330.

Iowa's Area Education Agencies. (1989). Students at risk. AEA Planning Assistance Guide for Local School Districts, 1-44.

Iowa youth at risk. (1991, September). Iowa Coalition for Comprehensive School Health Education, 2.

Jenkins, Dorothy. (1989, March). Educator's Role In Working With At-Risk Youth. District of Columbia Public Schools, 1-8.

Levin, Henry. (1987, October). Accelerating Elementary Education for Disadvantaged Students. Stanford University, 1-34.

Lewis, Anne C. (1990, November). Student health. The Education Digest, 59-62.

Lewis, Charles, and Lewis, Mary Ann. (1989). Educational outcomes and illness behaviors of participants in a child-initiated care system: a 12 year follow-up study. Pediatrics, 84, (5), 845-850.

Lewis, C., Lewis, M., Lorimer, A., and Palmer, B. (1977). Child initiated care: the use of school nursing services by children in an "adult-free" system. Pediatrics, 60, (4), 499-507.

Lewis, Mary Ann, and Lewis, Charles. (1985, August). Psychological distress and children's use of health services. Pediatric Annals, 14, (8), 555-560.

Lordi, Susan. (1991, September). Restructuring health care delivery, the unmet needs of children. NAS Newsletter, 6, (4), 12.

Marascuilo, Leonard, and McSweeney, Maryllin. (1977). Nonparametric and Distributions - Free Methods for the Social Sciences. Brooks-Cole Publishing Company, Monteray, California.

McGinnis, Michael J. (1981, Spring). Health problems of children and youth: A challenge for schools. Health Education Quarterly, 8, (1), 11-14.

Mehl, Robert A. (1990/ November). The school nurse: Beyond the band-aids. Principal, 22-23.

Morehouse, Ellen, and Scola, Claire. (1986). Children of Alcoholics: Meeting the Needs of the Young COA in the School Setting. The National Association for Children of Alcoholics South Laguna, California.

Morley, Raymond. (1988). Students At-Risk: A Planning Worksheet for Educators. Iowa Department of Education, 1-7.

Morrill, William, and Gerry, Martin. (1990, February). Integrating the delivery of services to school-aged children at risk. U. S. Department of Education, 1-20.

Murphy, John. (1990). The health of Arizona's school children. A Flinn Foundation Special Report, 1-20.

Nash, Wanda. (1988, March/April). A position of importance. School Nurse, 20-23.

Oda, Dorothy S. (1991, January/February). The invisible nursing practice. Nursing Outlook, 39, (1), 26-29

Oliver-Diaz, Phil. (1989). Minority children of alcoholics: Children facing double trouble. It's Elementary: Meeting the Needs of High-Risk Youth in the School Setting, The National Association for Children of Alcoholics, South Laguna, California.

Opie, Nancy, and Slater, Patricia. (1988, July/September). Mental health needs of children in school. Journal of Child and Adolescent Psychiatric and Mental Health Nursing, 31-35.

Palmore, Susan, and Shannon, Moira. (1988, May/June). Risk factors for adolescent pregnancy in students. Pediatric Nursing, 24, (3), 241-245.

Porter, Elaine. (1987, November/December). The school nurse's role in school phobia. School Nurse, 8-10.

Rogers, K.D., and Reese, Grace. (1965, January). Health studies-presumably normal high school students. American Journal of Diseases of Children, 109, 9-27.

Rogers, K.D., and Reese, Grace. (1965, January). Health studies-presumably normal high school students. III Health room visits. American Journal of Diseases of Children, 109, 28-42.

Rohrbaugh, Eleanor, and Rohrbaugh, Michael. (1990, April). Family nursing in an elementary school. School Nurse, 18-22.

Rosenberg, M., Smith, J., Davidson, L., Conn, J. (1987). The emergence of youth suicide: An epidemiologic analysis and public health perspective. Annual Review of Public Health, 8, 417-440.

Rowe, John. (1989, August). Nursing assessment of children of alcoholics. Journal of Pediatric Nursing, 4, (4), 248-254.

Salmonsen, Linda. (1988, November/December). Social maladaptation to first grade and teen drug abuse. School Nurse, 9-14.

Satir, Virginia. (1972). Peoplemaking. California: Science and Behavior Books, Inc. Mountain View, California.

Satir, Virginia. (1988). The New Peoplemaking. Science and Behavior Books, Inc., Mountain View, California.

Schwab, Nadine. (1989, December). Child abuse and neglect: legal and clinical implications for school nursing practice. School Nurse, 17-26.

Schwab, Nadine. (1991, October). Students with complex health care needs: Role of the school nurse. School Health Watch, 3 (1), 3-5.

Seffrin, John. (1990, April). The comprehensive school health curriculum: closing the gap between state of the art and state of the practice. School Health, 151-156.

Seibel, Maxine, and Murray, Joseph. (1988). Early prevention of adolescent suicide. Educational Leadership, 45, (6), 48-51.

Students At Risk, AEA Planning Assistance Guide for Local School Districts. (1989). Iowa AEA Educational Services.

The National Commission on the Role of the School and the community in improving adolescent health. (1989). Code Blue: Uniting for Healthier Youth. 1-52.

The Flinn Foundation. (1990). Finally-documentation that healthy kids learn better. NAS Newsletter, 5, (3), 4-6.

VanArsdell, W., Roghmann, K., Nader, P. (1972, March). Visits to an elementary school nurse. The Journal of School Health. 42, (3), p.142-147.

Wallerstein, J., and Kelly, J. (1975). The effects of parental divorce: Experiences of the preschool child. Journal of the American Academy of Child Psychiatry, 14, 600-616.

Ward, Barbara, (1991, October). The school nurse. NEA Today, 10, (3), 21.

Weitzman, M., Klerman, L., Lamb, G., Menary, J., Alpert, J. (1982, June). School absence: A problem for the pediatrician. Pediatrics, 69, (6), 739-746.

Weitzman, Michael. (1986, September/October). Where are the children; excessive absences. School Nurse, 24-27.

Wold, Susan J. (1981). School Nursing: A Framework for Practice. Minnesota: Sunrise Press.

Zeanah;, Paula. (1983). Children of divorce. Issues in Comprehensive Pediatric Nursing, 6, 91-106.

Appendix A

Teacher/Guidance Counselor/Administrator Check List

	Pregnancy		A Child of		Potential									Suspended
	Pregnant		Alcoholic or		or									or
	Student or	A Drug	Drug-Abusing		Attempted	Low	Abused or	Low				Physical		High Rate
	Teen-Age	User or	Parent or		Suicide	Academic	Neglected	Achiever				Mental or		of
Potential	Parent	Abuser	Guardian		Victim	Achiever	Child					Learning		School
Dropout												Disabilities		Absenteeism
														Times

Appendix B

Nurses's Information Form

LAST NAME	FIRST NAME	AGE	GRADE	LAST NAME	FIRST NAME	AGE	GRADE

HEAD OF HOUSEHOLD: _____

SPOUSE IN HOME: _____

STREET ADDRESS: _____

CITY & ZIP: _____ _____

HOME TELEPHONE: _____

PLACE OF EMPLOYMENT	TELEPHONE
FATHER'S WORK: _____	
MOTHER'S WORK: _____	

WHOM MAY WE CONTACT LOCALLY THAT WILL CARE FOR AND MAKE DECISIONS FOR YOUR CHILD IF WE CANNOT REACH YOU? _____

Telephone _____

Who is your family doctor? _____ Phone _____

Is your child covered under a family health and accident insurance policy? _____

What company? _____

Are you purchasing school insurance for your child? YES NO

INSURANCE: To participate in any inter-scholastic sport, each student must be covered by either family insurance or school insurance

ATHLETIC PHYSICAL: Each student participating in any sport is required to have one completed physical after July 1 for the up-coming school year

MEDICATIONS and HEALTH CONDITIONS: If your child/children is taking medications or "shots" on a regular basis please indicate the name of the medication dosage and purpose

Prescription medications to be given at school are to be in a container labeled by the pharmacist. All medication to be administered during school hours needs to be accompanied with a permission slip that includes the signature of the parent or guardian **AND** the physician (only if it is a prescription medication)

Please use the back of this sheet to make any comments concerning allergies special health condition operations (such as tubes in ears) that would be advisable for the school nurses and others working with your child/children at school to know

In order to keep your child's health record up to date please list any immunizations or TB tests given during the past year. Also we would appreciate information concerning new glasses or contacts

School nurses may not dispense any medications without instructions from a physician and/or parent. If you desire your child/children to be given aspirin or tylenol by the school nurse -please check the appropriate line and sign your name below

(Only tylenol will be given during the flu season.)

_____ Either aspirin or tylenol _____ Neither aspirin nor tylenol

Appendix C

Permission For Stuy

Student: Eleanor Moeckly

This is to acknowledge receipt of your prospectus. I hereby give you permission to collect data from the Nevada Community School population as delineated in your submitted prospectus entitled Visits to the School Nurse by the At-Risk Student Versus the Non At-Risk Student.

I understand that you are working under the guidance of Mary Hansen, Drake University faculty advisor, and that I may contact her at Drake University, Division of Nursing at 515 271-3161 during office hours, Monday through Friday, 8:00 a.m. to 4:00 p.m., relating to this research study.

Signature: Kenneth L. Shaw

Superintendent of Schools

Appendix D

Tabulation of Daily Visits to the Nurse's Office for Health Related Concerns

Student Name	Visits to the School Nurses Office

Appendix E

At-Risk, Non At-Risk Student

Day	At-Risk Students (Seen in the school nurse's office for health related concerns)	Daily Total	Non At-Risk Students (Seen in the school nurse's office for health related concerns)	Daily Total
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				

Appendix E

At-Risk, Non At-Risk Student

Day	At-Risk Students (Seen in the school nurse's office for health related concerns)	Daily Total	Non At-Risk Students (Seen in the school nurse's office for health related concerns)	Daily Total
24				
25				
26				
27				
28				
29				
30				
31				
32				
33				
34				
35				
36				
37				
38				
39				
40				
41				
42				
43				
44				
45				

Appendix E

At-Risk, Non At-Risk Student

Day	At-Risk Students (Seen in the school nurse's office for health related concerns)	Daily Total	Non At-Risk Students (Seen in the school nurse's office for health related concerns)	Daily Total
47				
48				
49				
50				
51				
52				
53				
54				
55				
56				
57				
58				
59				
60				
61				
62				
63				
64				
65				
66				
67				
68				

Appendix E

At-Risk, Non At-Risk Student

Day	At-Risk Students (Seen in the school nurse's office for health related concerns)	Daily Total	Non At-Risk Students (Seen in the school nurse's office for health related concerns)	Daily Total
70				
71				
72				
73				
74				
75				
76				
77				
78				
79				
80				
81				
82				
83				
84				
85				
86				
87				
88				
89				
90				

	AT RISK STUDENTS					NON-AT RISK STUDENTS			
	GRADES	GRADES	GRADES			GRADES	GRADES	GRADES	
DATE	K-4 & 7-8	5TH-6TH	9TH-12TH	TOTAL	DATE	K-4 & 7-8	5TH-6TH	9TH-12TH	TOTAL
1/15/91	27	2	6	35	1/15/91	28	10	7	45
1/16/91	16	1	5	22	1/16/91	22	1	0	23
1/17/91	20	1	5	26	1/17/91	21	5	1	27
1/18/91	31	1	7	39	1/18/91	15	1	1	17
1/21/91	31	4	4	39	1/21/91	17	1	4	22
1/22/91	22	1	9	32	1/22/91	19	3	3	25
1/23/91	30	2	4	36	1/23/91	15	4	2	21
1/24/91	17	7	6	30	1/24/91	23	2	3	28
1/25/91	22	4	10	36	1/25/91	17	2	3	22
1/28/91	40	3	5	48	1/28/91	28	1	1	30
1/29/91	32	5	18	55	1/29/91	23	4	2	29
1/30/91	15	4	6	25	1/30/91	15	2	5	22
1/31/91	28	1	10	39	1/31/91	22	3	7	32
2/1/91	31	1	6	38	2/1/91	20	1	5	26
2/4/91	30	4	8	42	2/4/91	25	0	3	28
2/5/91	40	1	15	56	2/5/91	32	0	8	40
2/6/91	30	4	6	40	2/6/91	28	2	4	34
2/7/91	36	1	13	50	2/7/91	27	2	5	34
2/11/91	29	0	13	42	2/11/91	29	1	7	37
2/12/91	27	2	7	36	2/12/91	19	0	1	20
2/13/91	27	1	5	33	2/13/91	22	0	2	24
2/14/91	20	0	5	25	2/14/91	21	0	3	24
2/15/91	23	1	5	29	2/15/91	20	0	3	23
2/18/91	51	1	6	58	2/18/91	40	1	6	47
2/19/91	42	1	7	50	2/19/91	27	1	4	32
2/20/91	42	1	8	51	2/20/91	27	1	2	30
2/21/91	47	2	6	55	2/21/91	31	2	2	35
2/22/91	38	0	7	45	2/22/91	23	0	2	25
2/25/91	39	0	9	48	2/25/91	21	0	3	24
2/26/91	35	1	5	41	2/26/91	20	0	2	22

	AT RISK STUDENTS					NON-AT RISK STUDENTS			
	GRADES	GRADES	GRADES			GRADES	GRADES	GRADES	
DATE	K-4 & 7-8	5TH-6TH	9TH-12TH	TOTAL	DATE	K-4 & 7-8	5TH-6TH	9TH-12TH	TOTAL
2/27/91	18	0	6	24	2/27/91	18	0	2	20
2/28/91	30	4	8	42	2/28/91	21	1	1	23
3/1/91	29	4	15	48	3/1/91	19	2	3	24
3/4/91	41	1	8	50	3/4/91	30	2	5	37
3/5/91	29	1	7	37	3/5/91	17	1	1	19
3/6/91	30	0	3	33	3/6/91	35	1	2	38
3/7/91	21	0	7	28	3/7/91	21	0	2	23
3/8/91	20	0	9	29	3/8/91	22	0	6	28
3/11/91	40	1	7	48	3/11/91	17	3	7	27
3/12/91	37	1	11	49	3/12/91	23	4	4	31
3/13/91	22	2	7	31	3/13/91	22	1	2	25
3/14/91	29	1	3	33	3/14/91	21	2	4	27
3/15/91	26	0	10	36	3/15/91	19	1	2	22
3/18/91	29	1	6	36	3/18/91	22	2	2	26
3/19/91	27	0	0	27	3/19/91	23	0	0	23
3/20/91	24	2	2	28	3/20/91	20	3	1	24
3/21/91	24	1	11	36	3/21/91	20	2	6	28
3/22/91	18	0	8	26	3/22/91	20	0	0	20
3/25/91	26	0	0	26	3/25/91	18	0	0	18
3/26/91	34	0	0	34	3/26/91	22	0	0	22
4/1/91	39	8	7	54	4/1/91	33	2	5	40
4/2/91	32	2	11	45	4/2/91	17	0	3	20
4/3/91	27	0	7	34	4/3/91	15	1	1	17
4/4/91	30	2	6	38	4/4/91	20	2	9	31
4/5/91	28	5	16	49	4/5/91	25	3	8	36
4/8/91	32	4	7	43	4/9/91	25	6	5	36
4/9/91	28	3	16	47	4/8/91	21	3	4	28
4/10/91	18	5	5	28	4/10/91	14	2	2	18
4/11/91	27	0	11	38	4/11/91	17	0	5	22
4/12/91	35	0	12	47	4/12/91	10	1	3	14

	AT RISK STUDENTS					NON-AT RISK STUDENTS			
	GRADES	GRADES	GRADES			GRADES	GRADES	GRADES	
DATE	K-4 & 7-8	5TH-6TH	9TH-12TH	TOTAL	DATE	K-4 & 7-8	5TH-6TH	9TH-12TH	TOTAL
4/15/91	29	4	11	44	4/15/91	24	3	6	33
4/16/91	38	4	8	50	4/16/91	20	5	3	28
4/17/91	22	2	6	30	4/17/91	19	2	0	21
4/18/91	20	7	15	42	4/28/91	14	4	4	22
4/19/91	26	3	11	40	4/19/91	19	0	3	22
4/22/91	33	13	4	50	4/22/91	30	5	6	41
4/23/91	25	4	11	40	4/23/91	23	2	8	33
4/24/91	36	1	5	42	4/24/91	19	0	2	21
4/25/91	34	0	7	41	4/25/91	21	1	3	25
4/26/91	27	4	8	39	1/27/04	18	3	0	21
4/29/91	30	3	9	42	4/29/91	19	2	2	23
4/30/91	30	3	9	42	4/30/91	25	2	1	28
5/1/91	20	7	1	28	5/1/91	12	1	0	13
5/2/91	38	4	8	50	5/2/91	22	2	2	26
5/3/91	20	3	8	31	5/3/91	13	0	1	14
5/6/91	30	6	8	44	5/6/91	23	1	2	26
5/7/91	27	2	11	40	5/7/91	22	0	4	26
5/8/91	20	0	0	20	5/8/91	18	0	0	18
5/9/91	31	0	0	31	5/9/91	13	0	0	13
5/10/91	28	0	0	28	5/10/91	18	0	0	18
5/13/91	30	5	8	43	5/13/91	22	4	3	29
5/14/91	36	3	10	49	5/14/91	17	3	5	25
5/15/91	34	0	7	41	5/15/91	32	0	2	34
5/16/91	21	1	11	33	5/16/91	11	3	5	19
5/17/91	30	2	7	39	5/17/91	16	2	5	23
5/20/91	25	3	7	35	5/20/91	33	0	5	38
5/21/91	26	4	4	34	5/21/91	18	4	2	24
5/22/91	29	5	5	39	5/22/91	14	1	2	17
5/23/91	24	0	1	25	5/23/91	18	0	0	18
5/24/91	23	0	11	34	5/24/91	21	0	5	26

	AT RISK STUDENTS					NON-AT RISK STUDENTS			
	GRADES	GRADES	GRADES			GRADES	GRADES	GRADES	
DATE	K-4 & 7-8	5TH-6TH	9TH-12TH	TOTAL	DATE	K-4 & 7-8	5TH-6TH	9TH-12TH	TOTAL
5/28/91	50	6	8	64	5/28/91	33	3	3	39
5/29/91	28	4	4	36	5/29/91	27	2	3	32
5/30/91	24	6	2	32	5/30/91	16	3	0	19
5/31/91	16	1	0	17	5/31/91	20	1	0	21
6/1/91	16	0	0	16	6/1/91	12	0	0	12

GRADE LEVEL	TOTAL # OF STUDENTS	TOTAL # OF AT-RISK STUDENTS	TOTAL # OF NON-AT RISK STUDENTS	TOTAL # OF INITIAL VISITS BY STUDENTS SEEN IN NURSE'S OFFICE	TOTAL # OF INITIAL VISITS BY AT RISK STUDENTS SEEN IN NURSE'S OFFICE	TOTAL # OF INITIAL VISITS BY NON-AT RISK STUDENTS SEEN IN NURSE'S OFFICE
Kindergarten	144	46	98	99	36	63
1st	120	58	62	103	52	51
2nd	137	69	68	120	63	57
3rd	115	56	59	105	53	52
4th	112	53	59	100	51	49
5th	118	46	72	79	31	48
6th	125	71	54	74	43	31
7th	110	51	59	100	48	52
8th	105	46	59	93	42	51
9th	103	60	43	72	43	29
10th	97	62	35	76	49	27
11th	111	67	44	67	44	23
12th	77	50	27	45	30	15
TOTAL # OF STUDENTS	1474	735	739	1133	585	548
	TOTAL NUMBER OF STUDENTS BY BUILDINGS					
K-4 & 7-8	843	379	464	720	345	375
5th-6th	243	117	126	153	74	79
9th-12th	388	239	149	260	166	94

Appendix G

Average Percentage of First Time Daily Visits to School Nurse

Total Population

Months	At-Risk Percentage	Non At-Risk Percentage
January	0.052	0.035
February	0.058	0.039
March	0.048	0.035
April	0.057	0.036
May	0.048	0.031
TOTAL	0.053	0.035

Grades K - 4 and 7 - 8

Months	At-Risk	Non At-Risk
January	0.067	0.044
February	0.088	0.053
March	0.074	0.047
April	0.077	0.044
May	0.072	0.042
TOTAL	0.076	0.046

Grades 5 - 6

Months	At-Risk Percentage	Non At-Risk Percentage
January	0.024	0.024
February	0.011	0.005
March	0.007	0.011
April	0.030	0.018
May	0.023	0.010
TOTAL	0.019	0.014

Grades 9 - 12

Months	At-Risk	Non At-Risk
January	0.042	0.020
February	0.032	0.023
March	0.026	0.017
April	0.038	0.025
May	0.022	0.014
TOTAL	0.032	0.020

Appendix H

Frequency of First Time Daily Visits to School Nurse

Total Population

Months	At-Risk Frequency	At-Risk Daily Average	Non At-Risk Frequency	Non At-Risk Daily Average
January	498	38.31	343	26.38
February	805	42.37	548	28.84
March	635	35.28	462	25.67
April	925	42.05	580	26.36
May	809	35.17	530	23.04
TOTAL	3672	38.65	2463	25.93

Grades K - 4 and 7 - 8

Months	At-Risk		Non At-Risk	
January	331	25.46	265	20.38
February	635	33.42	471	24.79
March	506	28.11	391	21.72
April	646	29.36	448	20.36
May	626	27.22	451	19.61
TOTAL	2744	28.88	2026	21.33

Grades 5 - 6

Months	At-Risk		Non At-Risk	
January	36	2.77	39	3.00
February	25	1.32	12	0.63
March	15	0.83	24	1.33
April	77	3.50	49	2.23
May	62	2.70	30	1.30
TOTAL	215	2.26	154	1.62

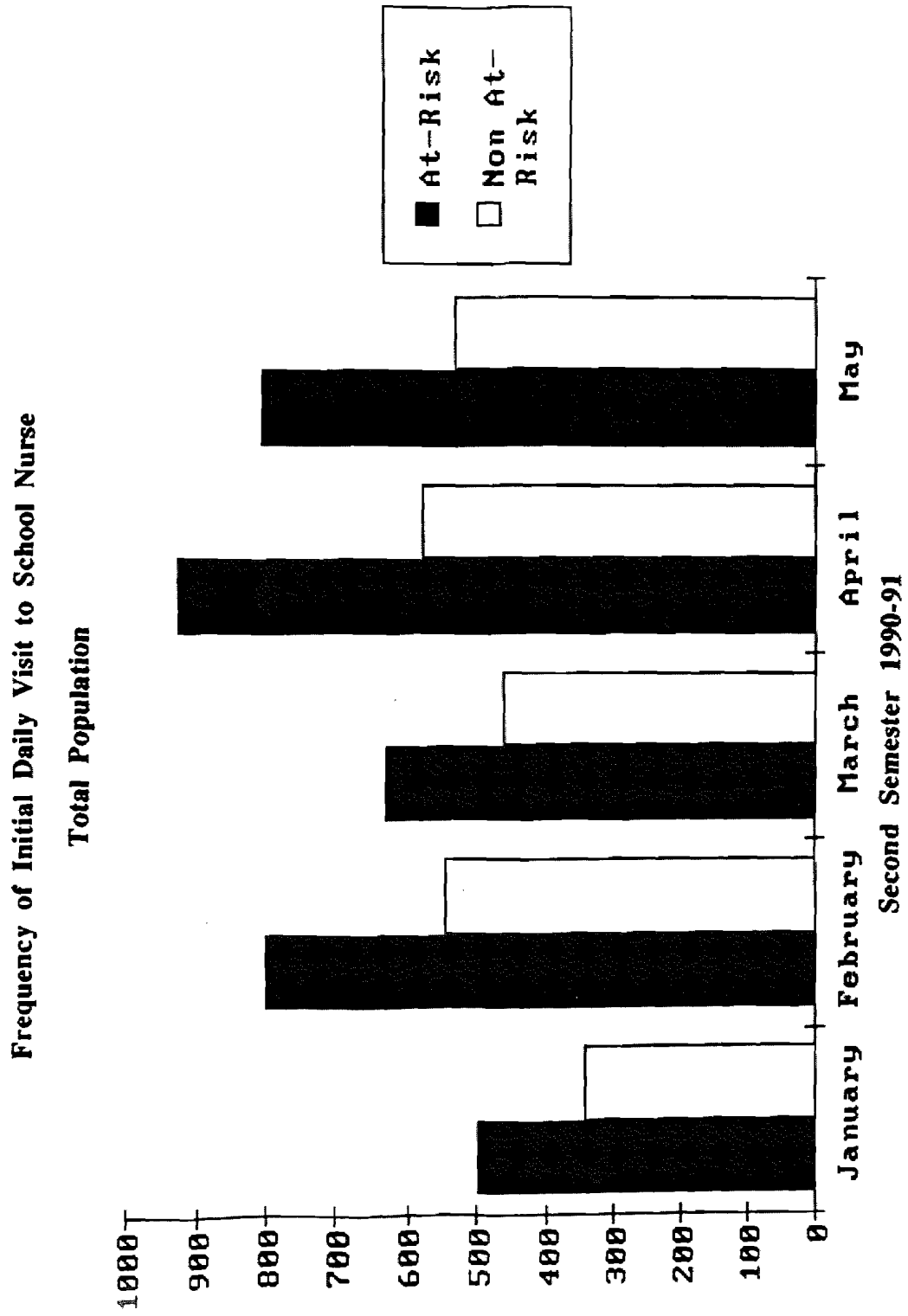
Grades 9 - 12

Months	At-Risk		Non At-Risk	
January	131	10.08	39	3.00
February	145	7.63	65	3.42
March	114	6.33	47	2.61
April	202	9.18	83	3.77
May	121	5.26	49	2.13
TOTAL	713	7.51	283	2.98

	Number of School Days
January	13
February	19
March	18

Appendix I

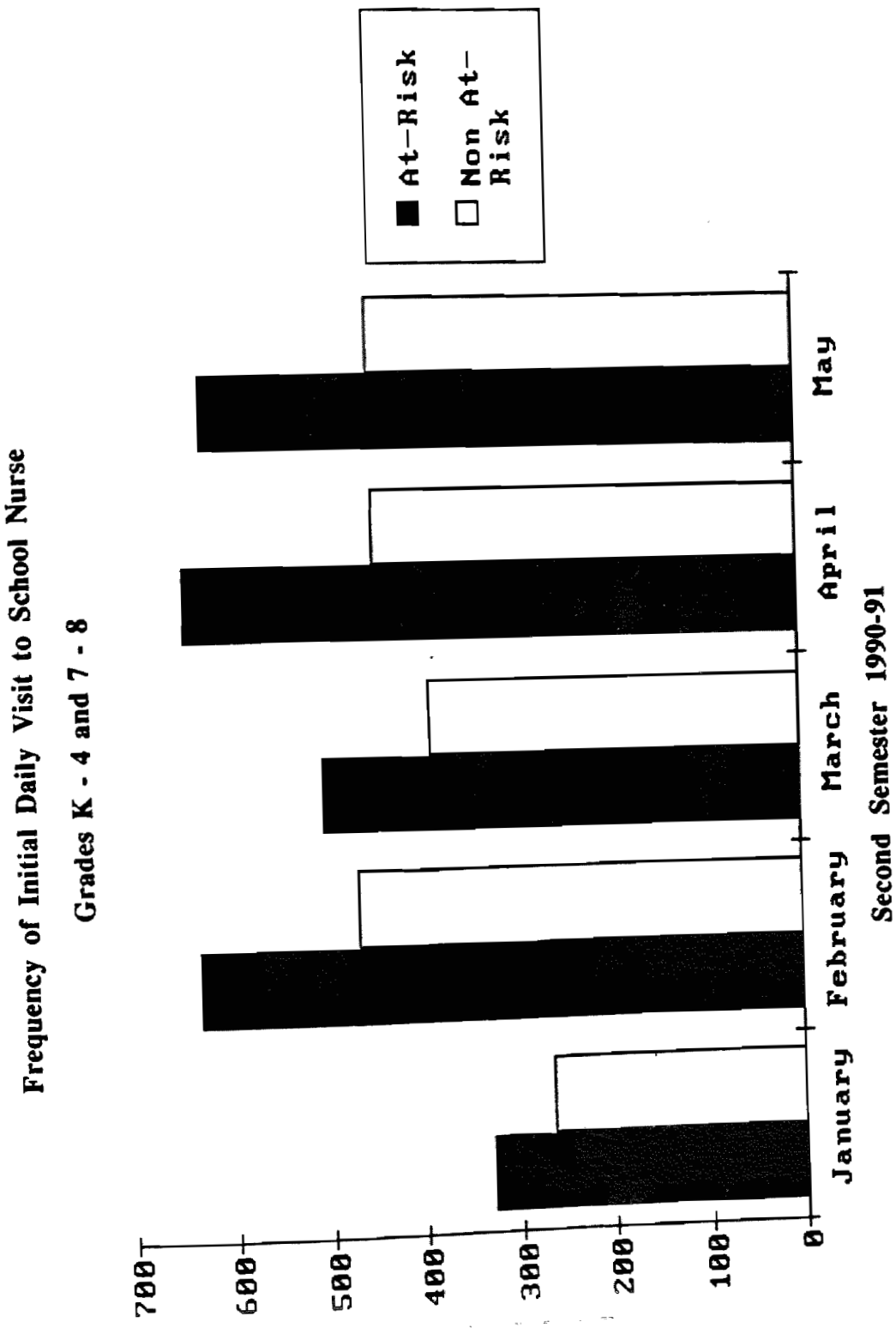
Frequency of Initial Daily Visit to School Nurse
Total Population



Appendix J

Frequency of Initial Daily Visit to School Nurse

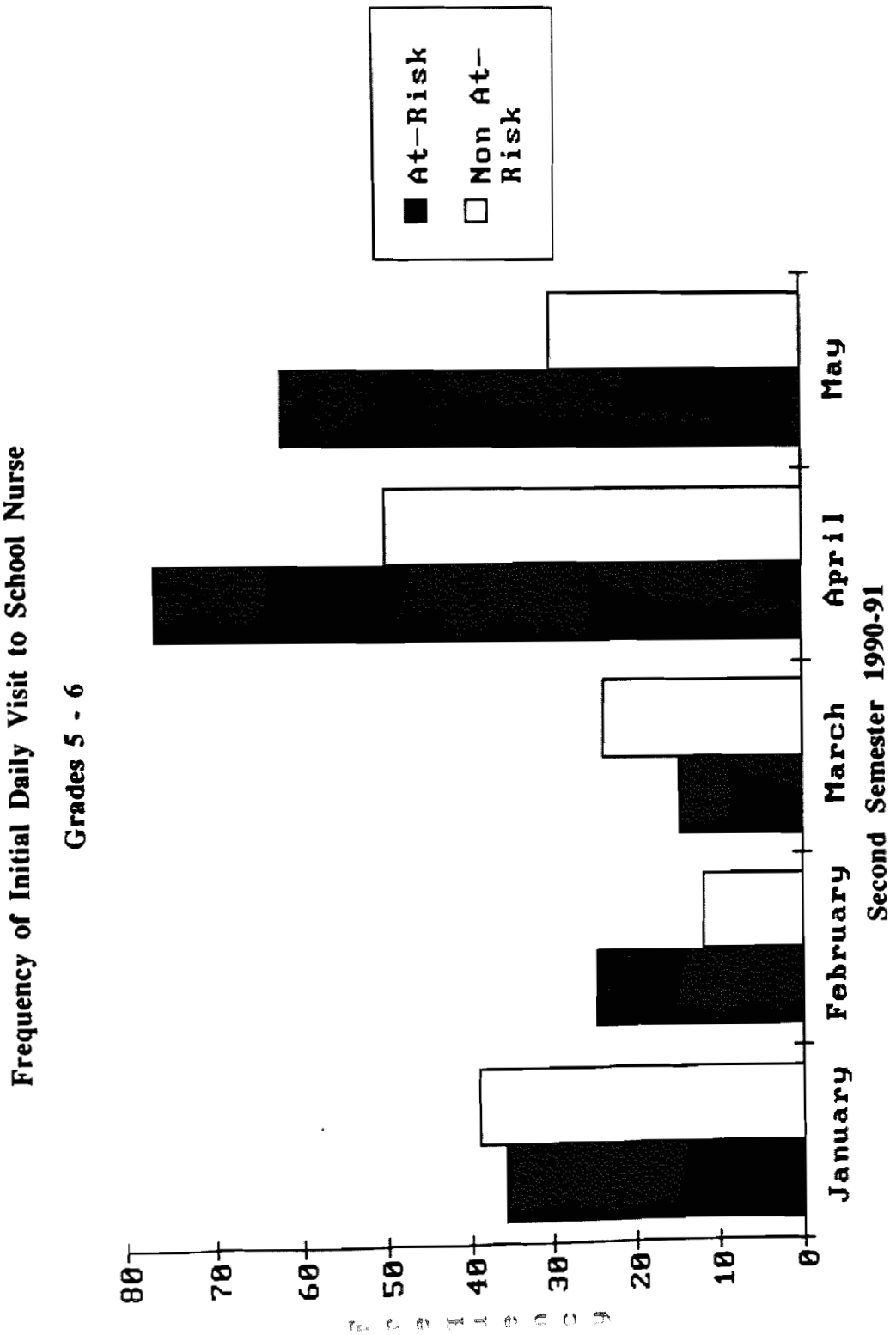
Grades K - 4 and 7 - 8



Appendix K

Frequency of Initial Daily Visit to School Nurse

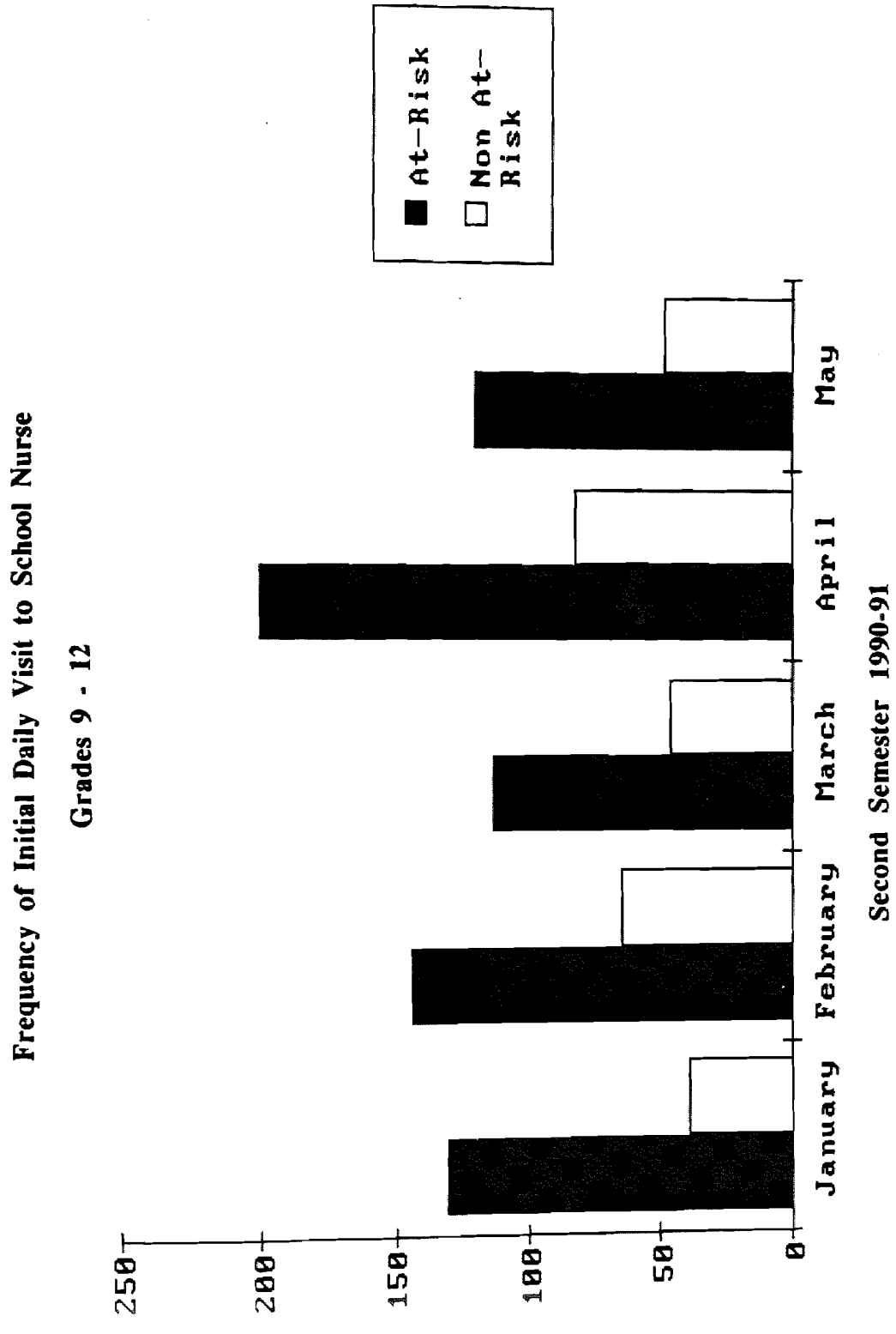
Grades 5 - 6



Appendix L

Frequency of Initial Daily Visit to School Nurse

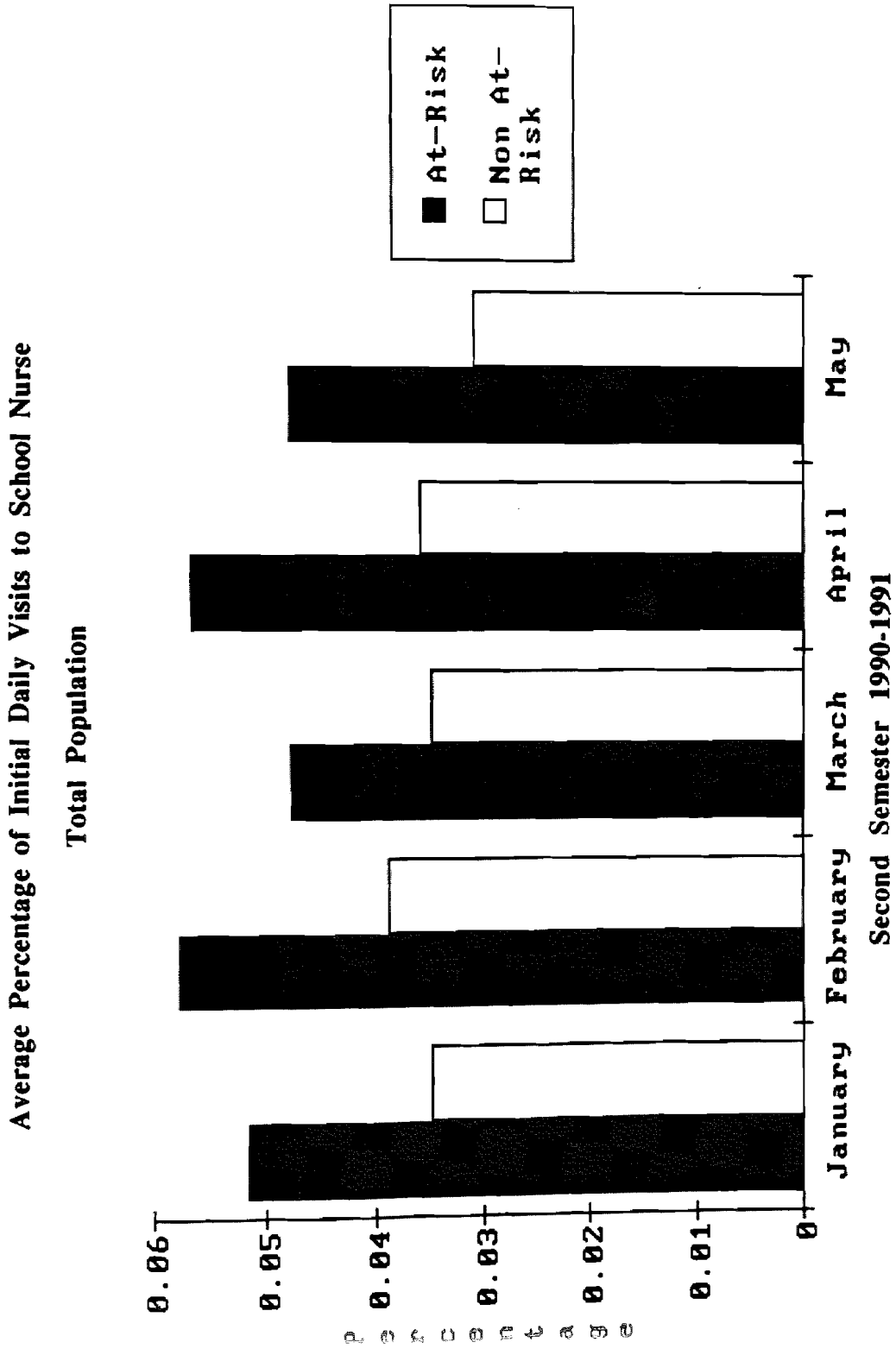
Grades 9 - 12



Appendix M

Average Percentage of Initial Daily Visits to School Nurse

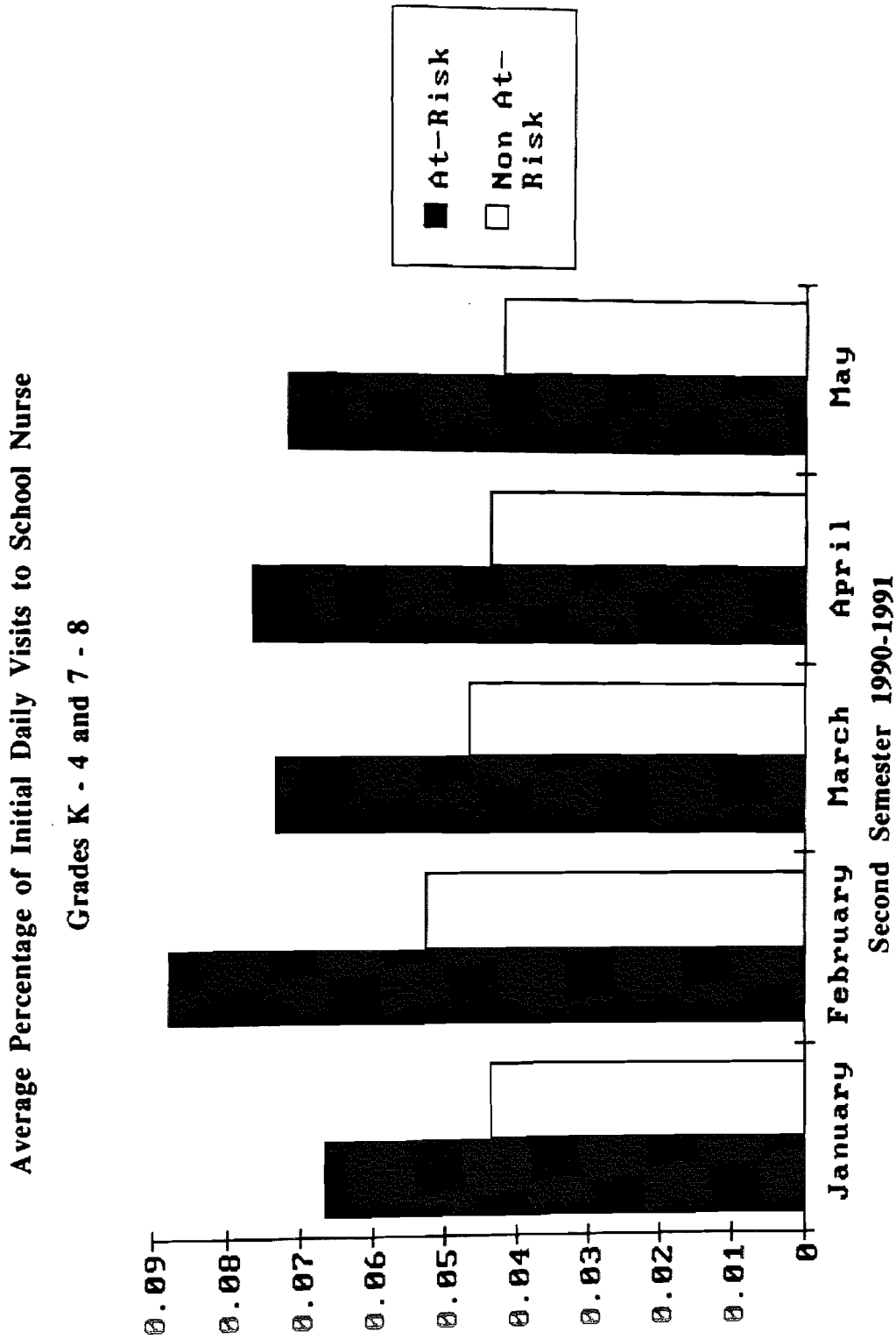
Total Population



Appendix N

Average Percentage of Initial Daily Visits to School Nurse

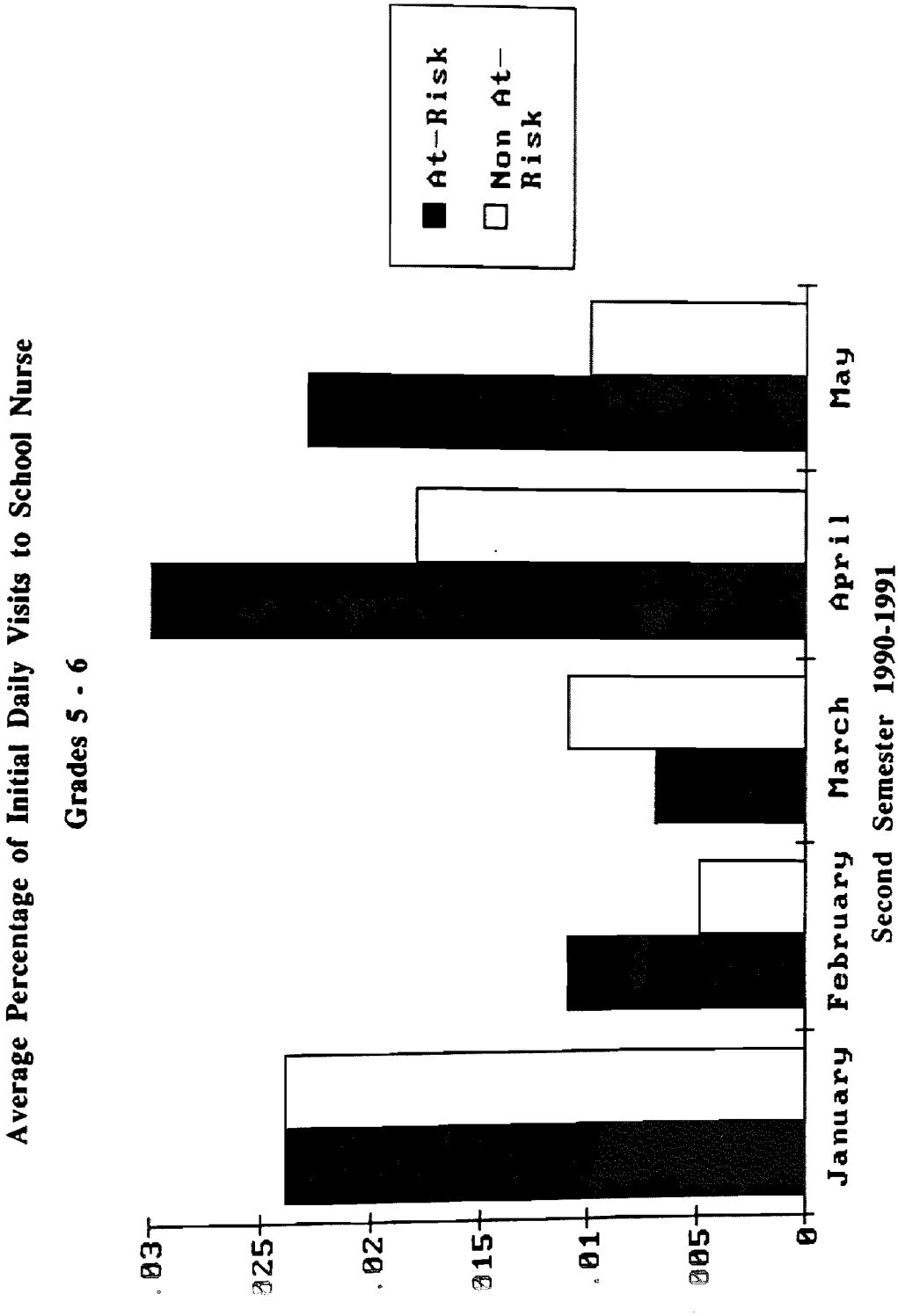
Grades K - 4 and 7 - 8



Appendix O

Average Percentage of Initial Daily Visits to School Nurse

Grades 5 - 6



Appendix P

Average Percentage of Initial Daily Visits to School Nurse

Grades 9 - 12